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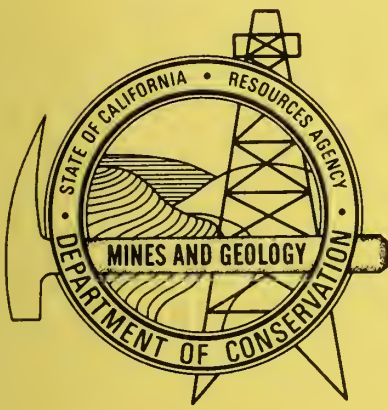
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VOLUME II. NORTHERN CALIFORNIA



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STATE GEOLOGIST

SPECIAL PUBLICATION 94

**MINERALS FOR INDUSTRY
NORTHERN CALIFORNIA
VOLUME II**

SUMMARY OF GEOLOGICAL SURVEY OF 1955-1961

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1987

**DEPARTMENT OF CONSERVATION
DIVISION OF MINES AND GEOLOGY
1416 Ninth Street
Sacramento, California 95814**

FOREWORD

The "Minerals for Industry" economic geology series was originally published by the Southern Pacific Company in 1964. The three volumes soon became popular references for prospectors and mining companies throughout California and the western states.

In 1986 the Division of Mines and Geology (DMG) purchased several hundred copies of Volumes II and III of "Minerals for Industry" from Santa Fe Mining Company, which is no longer interested in marketing them, and secured permission from Santa Fe Southern Pacific Corporation to re-release the two volumes as DMG Special Publications. Only Volume II (Northern California) and Volume III (Southern California) of the three-volume series is being re-released by DMG. (Volume I, which treats northern Nevada and northwestern Utah, has not been purchased and will not be distributed by DMG.) The two volumes have been made available at a price that will cover the cost of purchasing and re-releasing them.

In this re-release, new overleaf covers and title pages have been added to facilitate distribution through normal DMG channels. Otherwise, the volumes are exactly as originally released in 1964.

The Division of Mines and Geology has released the two volumes in this way because, although dated, they remain a useful source of information on the mineral geology of California.

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MAPS**PART I**

Mineral Commodity Map I.	Map Pocket
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PART II

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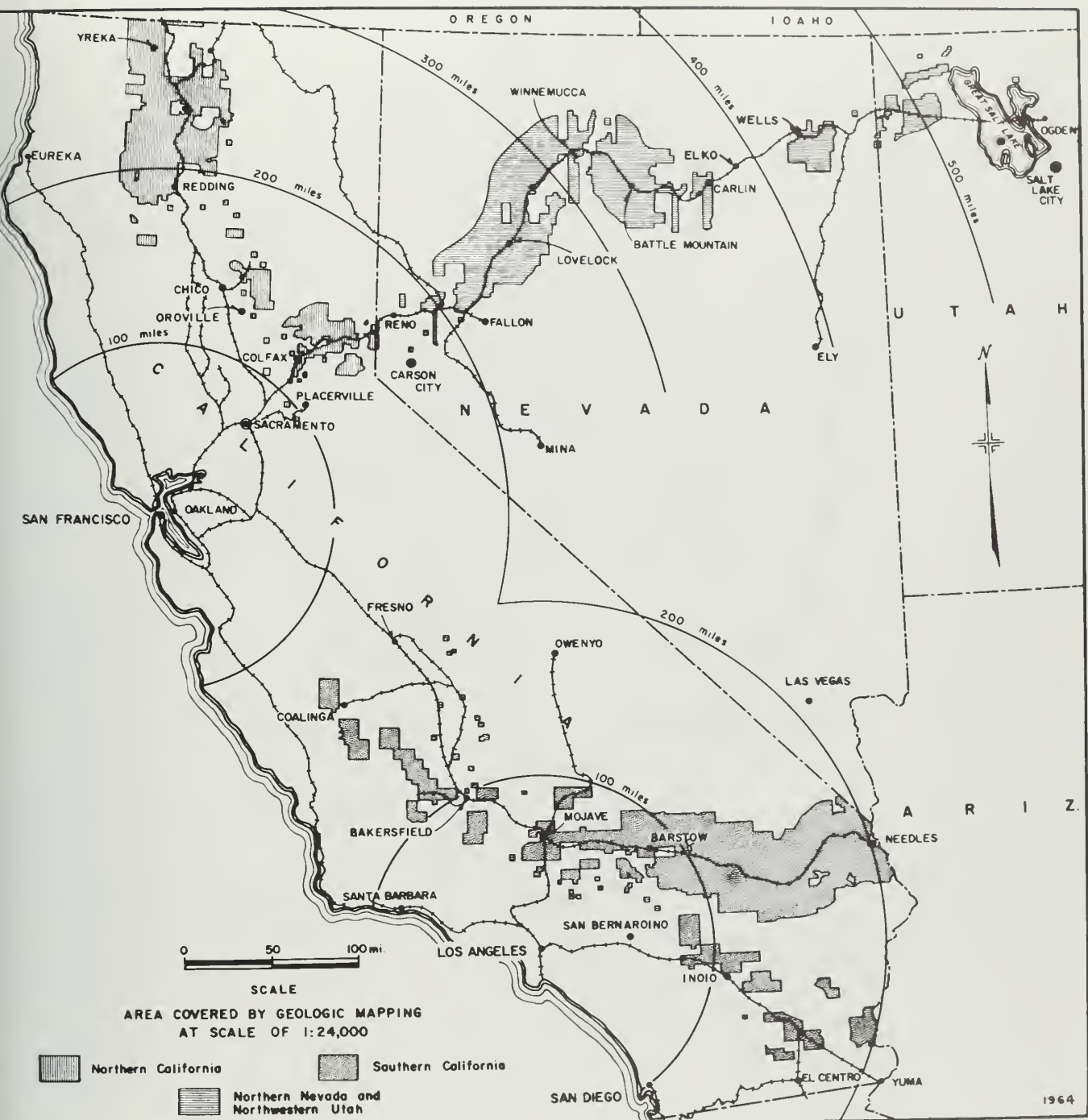


Figure 1

SOUTHERN PACIFIC
LAND DEPARTMENT

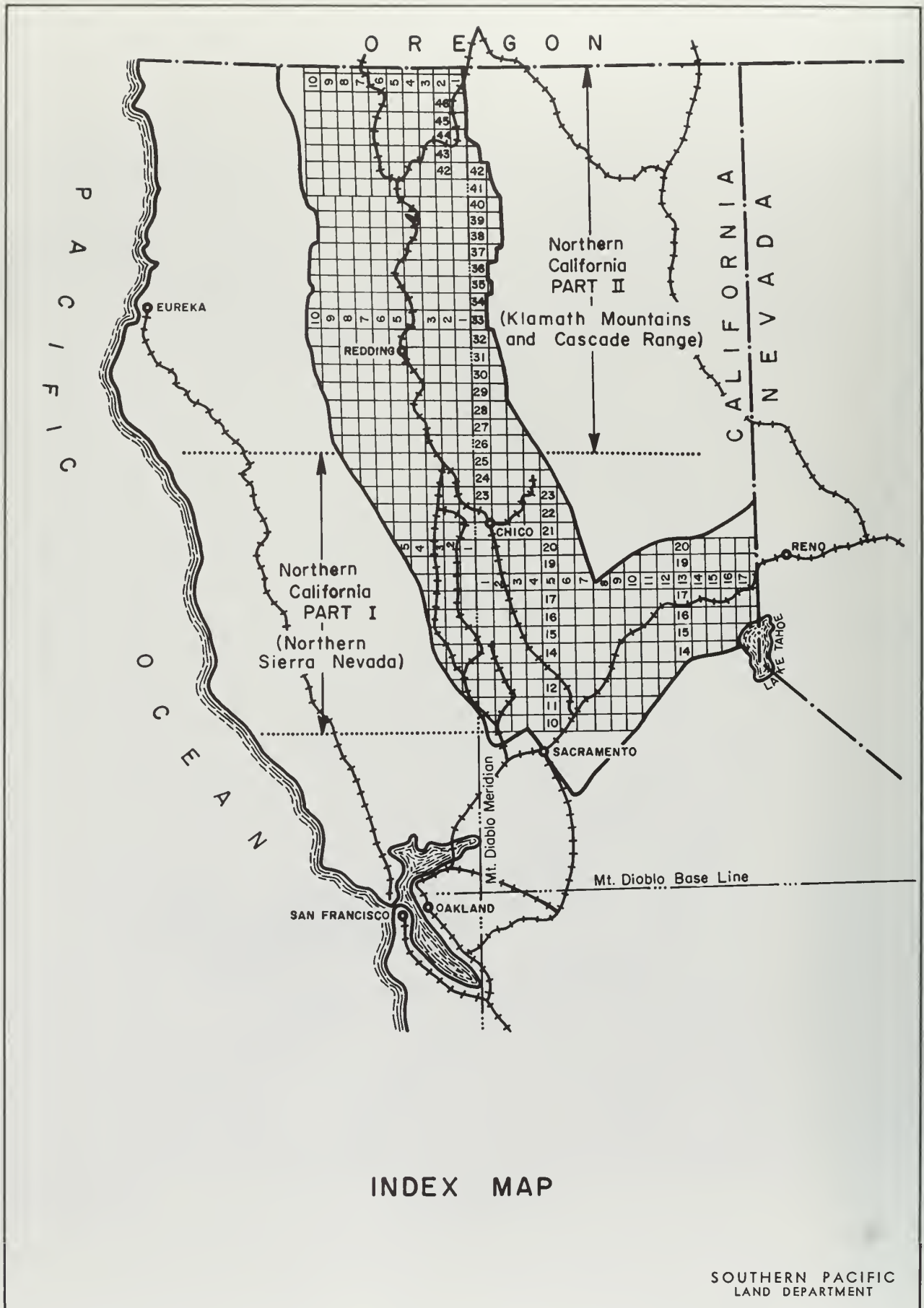


Figure 2

Introduction

Southern Pacific's economic geology survey in California, Nevada and Utah was conducted from early 1955 to mid-1961. Results of the survey are summarized in three *MINERALS FOR INDUSTRY* volumes:

NORTHERN CALIFORNIA

- Part I—Northern Sierra Nevada
- Part II—Klamath Mountains and Cascade Range

SOUTHERN CALIFORNIA

- Part I—San Joaquin Valley
- Part II—Western Mojave Desert
- Part III—Eastern Mojave and Colorado Deserts

NORTHERN NEVADA AND NORTHWESTERN UTAH

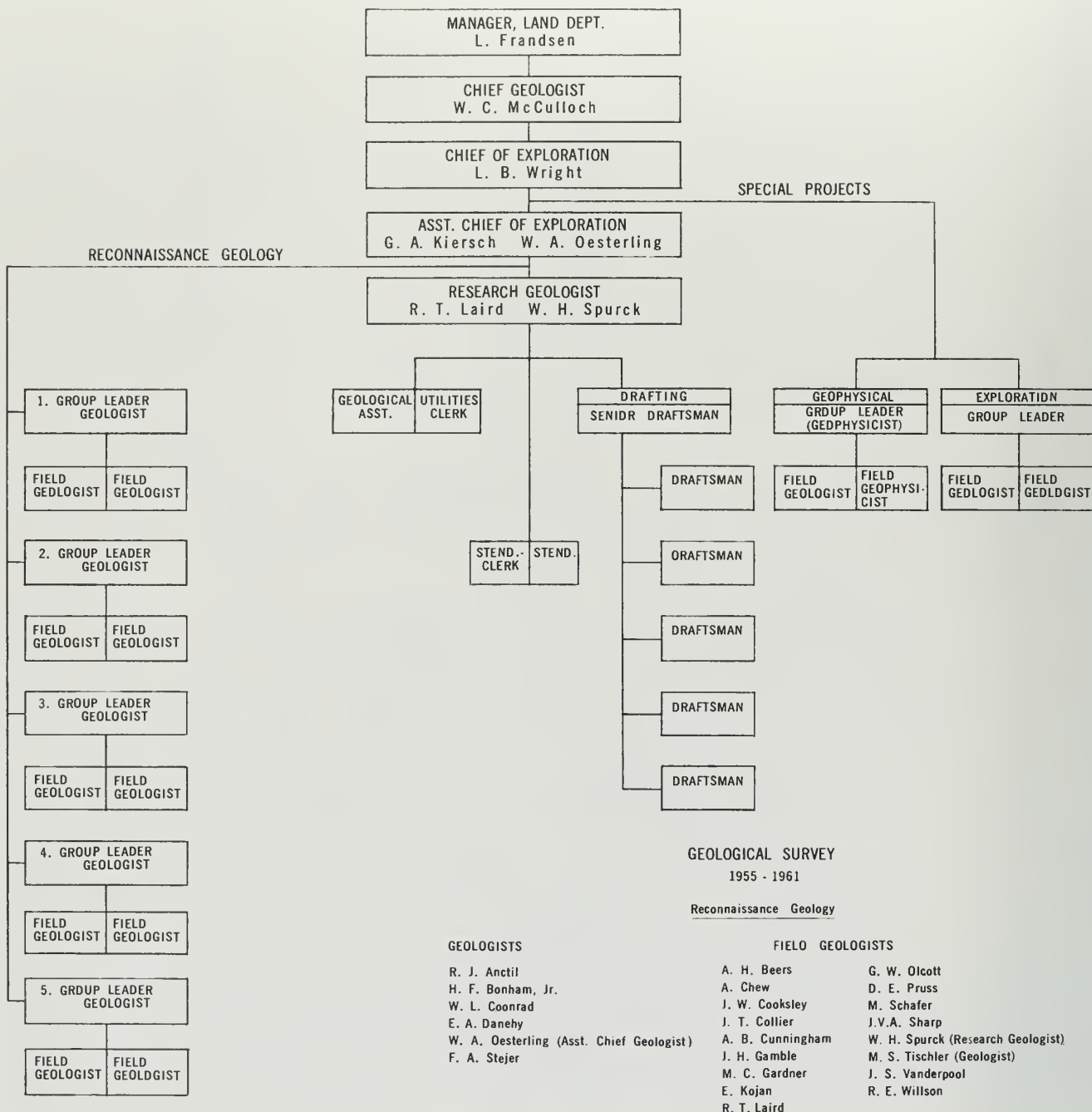
- Part I—Western Area
- Part II—Central and Eastern Area

Areas covered by the survey are illustrated on Figure 1. The townships and ranges of the Mount Diablo Base Line and Meridian, which are included in PARTS I and II of this NORTHERN CALIFORNIA volume, are shown on Figure 2.

During the survey, the areal geology of 13.3 million acres, approximately one-third Company owned, in California, Nevada, and Utah was mapped at a scale of 2,000 feet to the inch. Economic geology has been recorded on some 550 detailed topographic maps, which also illustrate elements of culture and Company ownership. Reports on the geology and mineral resources, except oil and gas, have been written for each map area. Reconnaissance investigation was followed by detailed field work at selected sites, and large-scale maps and accompanying reports were prepared. All maps and reports, with supporting data, are on file at the Land Department, Southern Pacific Company, San Francisco, California.

Mineral Commodity Maps I and II (map pocket) show the general locations of deposits summarized herein. Information relative to leasing of Company properties is available from the Land Department; however, it is not in position to furnish title information on other properties.

ORGANIZATION DIAGRAM
SOUTHERN PACIFIC COMPANY, LAND DEPT., GEOLOGICAL SURVEY



GEOLOGICAL SURVEY

1955 - 1961

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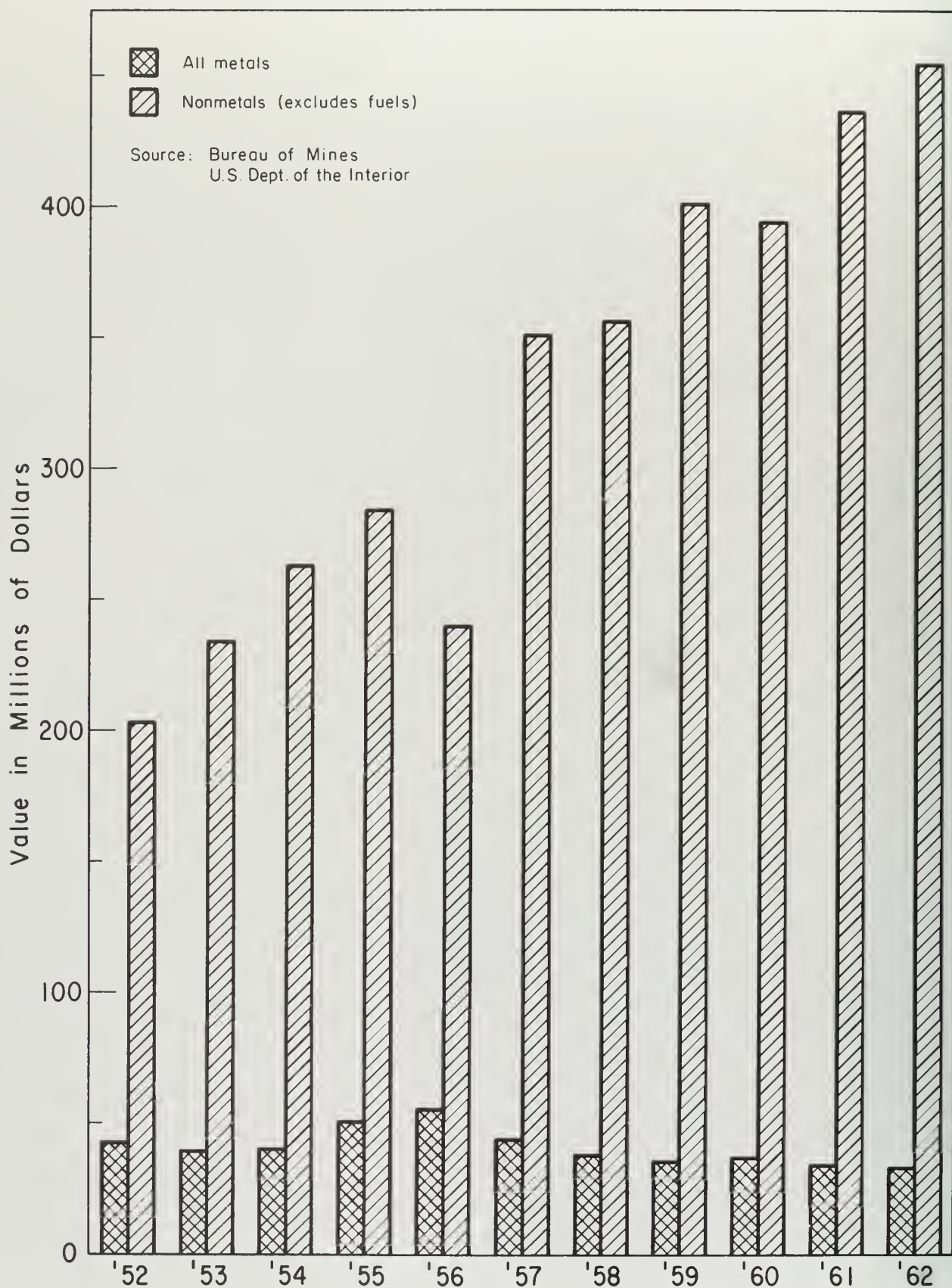
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Figure 3

Acknowledgements

The office and field staff assembled by the Land Department is shown on the Organization Diagram (Figure 3), and the persons employed in these positions from time to time are listed.

Authors of this volume are listed on the title pages for PARTS I and II. This volume was edited by: W. C. McCulloch, W. A. Oesterling, W. H. Spurck, and M. S. Tischler. The multitude of clerical details involved in proper assembly of the manuscript and editing galleys and page proofs were efficiently handled by Mrs. Marilou Lockhart.



CALIFORNIA MINERAL PRODUCTION

Compilation of Mineral Commodities

CLASSIFICATION

Commodity information is presented in condensed form under three major headings:

METALLICS—potential sources of metals.

INDUSTRIAL ROCKS AND MINERALS—all mineral commodities exclusive of
metallics, mineral fuels, and water
resources.

WATER RESOURCES—surface water discharge data.

METALLICS and **INDUSTRIAL ROCKS AND MINERALS** are further classified under one of the following subheadings:

Mines and Prospects—locations at which mining, development, or exploration has been undertaken.

Occurrences—commodity locations at which no physical exploration has been undertaken.

Trends—possible mineral locations projected from mines, prospects, or occurrences.

METHOD OF LISTING AND REFERENCING

Mineral commodities listed under **METALLICS** and **INDUSTRIAL ROCKS AND MINERALS** are presented in alphabetical order.

Mineral locations for each commodity are listed primarily in order of increasing townships and secondarily by increasing ranges. “MDBM” refers to Mount Diablo Base Line and Meridian (see Figure 2).

Numbers in italics to right of each location are keyed to numbered reference lists for each of the two parts of this volume.

LIMITATIONS

Mineral locations, listed herein are those described by Southern Pacific geologists in the course of investigation of Company lands and contiguous areas, and obtained

from published literature. This listing does not comprise a complete inventory of all mineral locations which may occur within the report area. The analyses and other test data reported are not necessarily representative inasmuch as an attempt was made to select the highest-grade material for preliminary analysis. Conclusions are made solely with respect to property owned by the Company,¹ and it is not the intent of Southern Pacific to evaluate properties it does not own.

At some of the listed locations, "ore-grade" material was found, but not in sufficient tonnage for economic operation. At others, material in sight is too low grade to constitute ore under present economic conditions regardless of available tonnage; or profitable exploitation is dependent on technological advances. Conclusions as to the economics of operating any mineral property should be based on the availability of markets for products at favorable sales price and cost.

¹Deposits at locations indicated by * are not owned by Southern Pacific.

PART I

Northern Sierra Nevada

By: M. S. Tischler, *Geologist*

PART I encompasses areas mapped by Southern Pacific within:
Townships 13-25 North, Ranges 2-18 East, MDBM.
See Mineral Commodity Map I in map pocket.

Metallics

Deposits¹ of metallic mineral commodities are of limited extent, and those of economic importance are of relatively high unit value as contrasted with industrial rocks and minerals. Metallics are commonly associated with igneous intrusives and are usually localized along fractures.

Most metallic ores and concentrates of ores are sold by producers to ore buyers and processors somewhat below quoted market price. The difference reflects the costs and profits of such buyers. There are variations in price from time to time depending on quality, quantity, and demand.

Of the metallic mineral deposits on Company land in the PART I area, the following are considered to be the most promising:

CHROMIUM:

Lot 4(?), Sec. 5, T.15N., R.11E., MDBM, Placer Co.
NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 31, T.22N., R.5E., MDBM, Butte Co.
SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 35, T.23N., R.4E., MDBM, Butte Co.

COPPER AND MOLYBDENUM:

SW $\frac{1}{4}$ Sec. 7, T.18N., R.13E., MDBM, Nevada Co.

GOLD (lode):

SW $\frac{1}{4}$ Sec. 29, T.16N., R.14E., MDBM, Placer Co.
NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 23 except Lot 45, T.17N., R.11E., MDBM, Nevada Co.
N $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 11, T.19N., R.11E., MDBM, Sierra Co.

GOLD (placer):

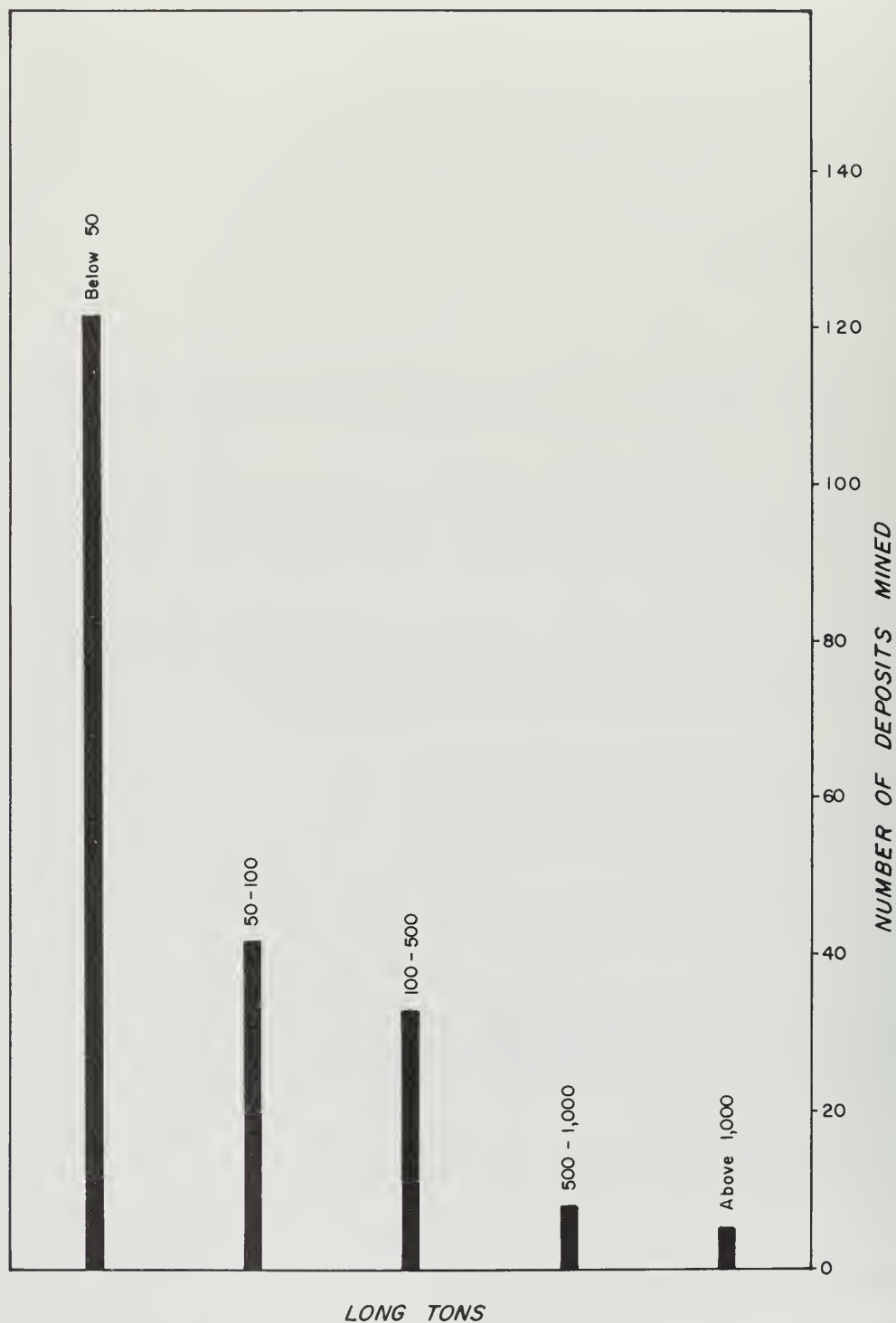
W $\frac{1}{2}$ SE $\frac{1}{4}$ and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 13, T.15N., R.12E., MDBM, Placer Co.

CHROMIUM [Cr]

Chromite, the only ore mineral of chromium, occurs in isomorphic series with other members of the spinel group of minerals. It is commonly admixed with magnetite in the

¹Deposits at locations indicated by * are not owned by Southern Pacific.

PRODUCTION VS. NUMBER OF DEPOSITS MINED FOR CHROMITE



SOUTHERN PACIFIC
LAND DEPARTMENT

Figure 4

serpentinized belts of California. Buyers normally place chemical specifications on the ore they are willing to purchase because the economics of the utilization of chromite is generally dependent upon its chemical composition. Although the specifications used by buyers vary somewhat, they all approximate those established for national stockpile purchases during the 1950's as follows:

GRADE	PERCENT BY WEIGHT, DRY BASIS							
	Cr:Fe MIN.	Cr ₂ O ₃ MIN.	Fe MAX.	Cr ₂ O ₃ + Al ₂ O ₃ , MAX.	SiO ₂ MAX.	S MAX.	P MAX.	CaO MAX.
Metallurgical	3:1	48	—	—	8.0	0.08	0.04	—
Refractory	—	31	12	60	5.5	—	—	1.0
Chemical	—	44	—	—	5.0	—	—	—

Metallurgical grade chromite improves ferrous alloys in their resistance to corrosion, oxidation, friction, impact, or creep. Chromite refractories are chemically neutral and are largely used in furnace linings and repairs. Chromium chemicals are largely used in leather tanning, textiles, electroplating, and the manufacture of pigments.

Most of the chromite produced has come from relatively few properties (Figure 4). Only about 10% of the properties listed produced over one hundred tons.¹ Production periods conformed with elevated prices due to war and subsidization (Figure 5).

Chromite occurs as primary segregations (massive deposits) and as disseminations in dunite. Shears occur along zones of weakness, i.e., lesser competency. Chromite is least competent and predates shearing; therefore, prospecting should be more rewarding along shear zones in dunite known to contain chromite deposits.

Many chromite deposits contain several lenses, the major axes of which are in near alignment due to rotation to the direction of least stress by primary flowage or later shearing. Chromite exploration should be directed along the trends of the major axes of lenses. Some lenses are connected by a thin gouge of sheared chromite called a lead. Leads from chromite lenses should be thoroughly investigated in exploration.

Disseminated ores, suitable for concentration, have been receiving greater attention as massive near-surface deposits have been depleted. Chromite from disseminated deposits was mined in greater quantity than was massive ore for the first time in California during the mid-1950's, and disseminated deposits will continue to be important when economics permit mining. Disseminated deposits, not considered during exploration for massive ores, would at such time take on importance.

MINES AND PROSPECTS

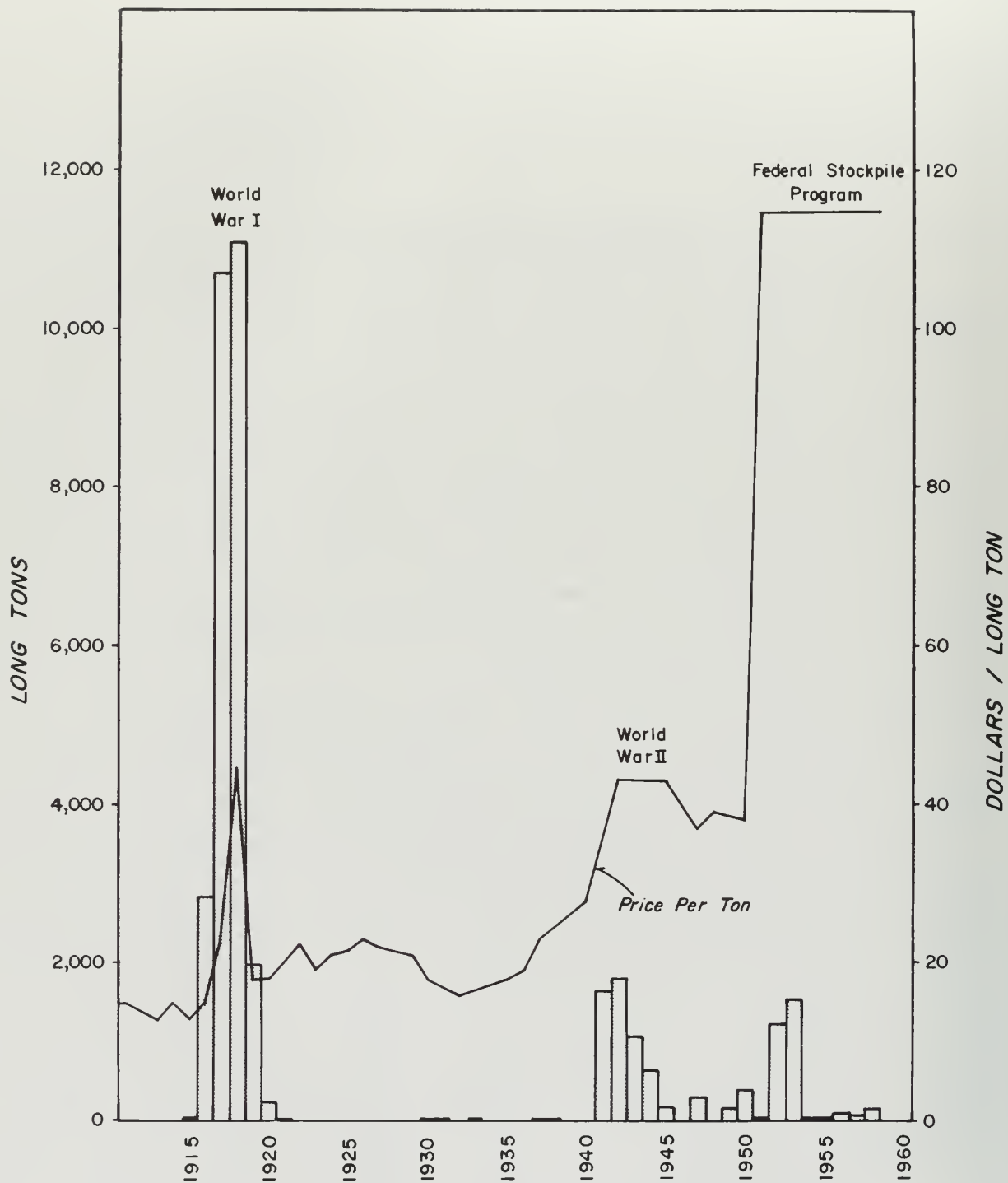
Name: Gas Canyon Area

Location: *Secs. 12, 13, and 24, T.13N., R.9E., and Sec. 18, T.13N., R.10E., MDBM, Placer Co.; includes the following: (24)

- Dodds Ranch—center Sec. 12
- Green (Americus)—SE $\frac{1}{4}$ Sec. 12
- Gas Canyon—E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 13
- Fiddler's Green—Sec. 24
- Farmer—Secs. 12, 13, and 24

Description: Dodds Ranch—trench exposed disseminated chromite assaying 20.4% Cr₂O₃ and 18.0% SiO₂; Green—shallow shaft with short drifts at bottom; disseminated chromite assaying 21.1% Cr₂O₃ and 12.0% SiO₂ mixed and shipped with chromite from Gas Canyon; Gas Canyon—pit contained 4' by 6' pod; 50–100 tons of 34% Cr₂O₃

¹Tonnages reported as long tons (2240 lbs), unless noted otherwise.



SOUTHERN PACIFIC
LAND DEPARTMENT

Figure 5
CHROMITE SALES FROM
BUTTE, NEVADA, PLACER AND SIERRA COUNTIES

produced, most of which came from Gas Canyon; Fiddler's Green—several pits and trenches; selected sample assayed 32.3% Cr_2O_3 and 13.0% SiO_2 ; all activity in area during 1917–18

Geology: lenses, stringers, and disseminated chromite in serpentinized ultramafic rocks

Name: Moulton

Location: *SW $\frac{1}{4}$ Sec. 21, and N $\frac{1}{2}$ Sec. 28, T.15N., R.9E., MDBM, Nevada Co. (24)

Description: less than ten tons from pits during World War I

Geology: small chromite lenses and disseminated chromite in serpentinized ultramafic rocks

Name: West

Location: *S $\frac{1}{2}$ Sec. 1, and NE $\frac{1}{4}$ Sec. 12, T.15N., R.10E., MDBM, Placer Co. (1,24)

Description: cut and several pits; produced 289 tons of 42–54% Cr_2O_3 during World War I and 27.3 tons of 44.84% Cr_2O_3 with 11.44% Fe and Cr:Fe of 2.66:1 in 1942

Geology: massive and disseminated chromite in serpentinized ultramafic rocks

Name: Oak Patch

Location: *SW $\frac{1}{4}$ Sec. 5, T.15N., R.11E., MDBM, Placer Co. (24)

Description: two deposits; lowermost mined in 1919 or 1920 by trenching and pitting; 16 tons mined from 10' by 5' pod; 7–8 tons removed in 1942 from trench in uppermost deposit

Geology: chromite pods and disseminated chromite in sheared serpentine

Location: Lot 4(?), Sec. 5, T.15N., R.11E., MDBM, Placer Co. (1,24)

Description: 50 tons mined in 1918 from pits which expose low-grade banded chromite deposit 4–6' wide and about 200' long; maximum grade attained about 35% Cr_2O_3 , but average much lower; one ton of shipping-grade chromite sorted from 30–40 tons of milling grade

Geology: banded and disseminated chromite in shear zone in serpentine

Conclusions: source of at least one to two thousand tons of milling-grade chromite

Name: Iron Spring

Location: *SW $\frac{1}{4}$ Sec. 5, T.15N., R.11E., MDBM, Placer Co. (24)

Description: 7–8 ton boulder of chromite broken and shipped in 1918

Geology: chromite float

Name: Lucky Strike

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 6, T.15N., R.11E., MDBM, Placer Co. (24)

Description: 15–20 tons of chromite mined in 1918 from two trenches and a pit

Name: Dunbar

Location: *Lot 3, Sec. 6, T.15N., R.11E., MDBM, Placer Co. (24)

Description: 2–3 tons of chromite float recovered from pit

Geology: serpentine erosion surface under thin cover of volcanic rocks

Name: Beat

Location: *NW Cor. Lot 18, Sec. 6, T.15N., R.11E., MDBM, Placer Co. (1,24)

Description: 4' by 6' by 30' lens mined from several adits; float and landslide material sluiced; about 500 tons of 55% Cr₂O₃ produced 1920-45

Geology: chromite in weathered serpentine slump block

Name: Scott

Location: *NW Cor. Lot 19, Sec. 6, T.15N., R.11E., MDBM, Placer Co. (24)

Description: 160 short tons mined in 1917 from a series of pits and a short drift

Geology: series of small chromite lenses in sheared serpentine

Name: Snakehead (*Jumbo*)

Location: *Lot 27, Sec. 6, T.15N., R.11E., MDBM, Placer Co. (24)

Description: 65-70 tons of 47% Cr₂O₃ mined in 1918 from pits

Geology: two kidney-shaped pods of massive chromite connected by a narrow stringer; serpentine host rock

Name: Uvarovite

Location: *SE $\frac{1}{4}$ Sec. 24, T.16N., R.10E., MDBM, Placer Co. (24)

Description: less than 100 tons mined during World War I from a trench and an adit

Name: Hodge Ranch

Location: *Sec. 25, T.16N., R.10E., MDBM, Placer Co. (24)

Description: two deposits; one in NW $\frac{1}{4}$ yielded 30 tons from an adit and raise plus 157 tons of float ore in 1916; the other in NE $\frac{1}{4}$ yielded about ten tons of 35% Cr₂O₃ from surface cuts in 1917

Geology: chromite in serpentine

Location: N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 1, T.17N., R.10E., MDBM, Nevada Co. (1,19,21,24)

Description: 139 tons of 42% Cr₂O₃ mined from several small pits and a shaft in 1917-18

Geology: one 8' by 20' and several smaller lenses of chromite in serpentinized ultramafic rocks

Conclusions: shows limited promise

Location: NE $\frac{1}{4}$ (?)SW $\frac{1}{4}$ Sec. 1, T.17N., R.10E., MDBM, Nevada Co. (1,19,24)

Description: 30-35 tons of 52% Cr₂O₃ mined from 25' deep trench during 1917-18

Geology: lens and stringer of massive chromite in serpentinized ultramafic rocks

Conclusions: shows limited promise

Location: NW $\frac{1}{4}$ (?)NW $\frac{1}{4}$ Sec. 1, T.17N., R.10E., MDBM, Nevada Co. (1,24)

Description: 22 tons mined from trench during World War I

Geology: chromite lens in serpentinized ultramafic rocks

Conclusions: shows little promise

- Location:* NW $\frac{1}{4}$ Sec. 1, T.17N., R.10E., MDBM, Nevada Co. (1,24)
Description: two pits
Geology: four lenses of disseminated chromite in serpentinized ultramafic rocks
Conclusions: shows little promise
- Name:* Rapid Fire
Location: *SW $\frac{1}{4}$ Sec. 12, T.17N., R.10E., MDBM, Nevada Co. (1,17,19,21,24)
Description: 50–100 tons mined from trench during World War I
Geology: chromite lens, 2.5' wide and 10' long, in serpentinized ultramafic rocks
- Name:* Red Ledge
Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 13, T.17N., R.10E., MDBM, Nevada Co. (1,17,19,21,24)
Description: 1375 tons produced from two adits, a short raise, several small stopes and a cut during World War I; 100' unexplored area between two lenses may contain additional chromite; largest lens yielded about 600 tons
Geology: chromite lenses in serpentine; massive chromite shattered and coated with kammererite, uvarovite, and talc
- Name:* Victory (*Mount Hill*)
Location: *SE $\frac{1}{4}$ Sec. 13, T.17N., R.10E., MDBM, Nevada Co. (1,17,21,24)
Description: 60 tons mined during 1917–18 and possibly 50 tons in 1942 from three pits
Geology: lens of massive chromite in serpentinized ultramafic rocks
- Name:* Olsen
Location: *NE $\frac{1}{4}$ Sec. 24, T.17N., R.10E., MDBM, Nevada Co. (1,24)
Description: ten tons of 40% Cr₂O₃ mined in 1918
Geology: chromite in serpentine
- Name:* Macchaus (*Liberty*)
Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 5, T.18N., R.10E., MDBM, Sierra Co. (4,24)
Description: 188 tons of 46% Cr₂O₃ mined from 12 small cuts in 1918; chromite lenses weighed 14 to 20 tons each
Geology: chromite lenses in sheared serpentine
- Name:* McCormick
Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 5, T.18N., R.10E., MDBM, Sierra Co. (24)
Description: five tons mined from pit in 1918
- Name:* Croesus
Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 5, T.18N., R.10E., MDBM, Sierra Co. (24)
Description: ten tons mined in 1918
- Name:* Flynn and Woods
Location: *SW $\frac{1}{4}$ Sec. 6, T.18N., R.10E., MDBM, Sierra Co. (24)
Description: five tons mined from pit in 1918

Name: Williamson and Cole

Location: *E $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 25(?), T.18N., R.10E., MDBM, Nevada Co. (24)

Description: 45 tons of "high-grade" from massive chromite pod and more than 15 tons of float chromite mined in 1918

Geology: massive chromite in sheared serpentized ultramafic rocks

Name: Moscatelli No. 2

Location: *Sec. 36, T.18N., R.10E., MDBM, Nevada Co. (1,24)

Description: 13 tons mined from trench in 1917 and 11 tons from an incline in 1918; six tons assaying 42.31% Cr₂O₃ sold in 1919 and 20.4 tons averaging 39.21% Cr₂O₃ and 10.1% Fe with a Cr:Fe of 2.66:1 shipped in 1944

Geology: chromite in serpentized ultramafic rocks

Name: Suzy Bell (*Lucky Strike*)

Location: *E $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 4, T.19N., R.7E., MDBM, Butte Co. (24)

Description: about 300 tons of 36–40% Cr₂O₃ mined from several trenches during World Wars I and II; largest cut 50' long by 10' wide by 12' deep; chromite mined in 1942 contained 35.09% Cr₂O₃ and 11.80% Fe with a Cr:Fe of 2.03:1

Geology: lens of chromite about 50' long and to 8' wide in sheared serpentine; several smaller lenses in vicinity

Name: P.U.P. (*Zenith*)

Location: *SE $\frac{1}{4}$ Sec. 6, T.19N., R.7E., MDBM, Butte Co. (24)

Description: about 1,100 tons of 35–37% Cr₂O₃ mined from a trench during World War I; about 50 tons of 38% Cr₂O₃ mined from several pits during World War II

Geology: chromite lenses in serpentine

Name: Roupe

Location: *SE $\frac{1}{4}$ (?) Sec. 30, T.19N., R.9E., MDBM, Sierra Co. (2,24)

Description: 356 short tons of 42–43% Cr₂O₃ mined during World War I and 20 tons of 44.6% Cr₂O₃ shipped in 1942, with 50-ton reserve as of 1942; workings include 22 trenches and three pits

Geology: small lenses of massive chromite in serpentinite and residual soil

Name: South Star

Location: *W $\frac{1}{2}$ Sec. 17, T.19N., R.10E., MDBM, Sierra Co. (24)

Description: about 14 tons mined in 1918

Geology: chromite in serpentized ultramafic rocks

Name: Dorriss

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 29, T.19N., R.10E., MDBM, Sierra Co. (2,24)

Description: 60 tons of 45% Cr₂O₃ mined from three pits and a trench in 1918

Geology: several chromite lenses in serpentine

Name: Finan (*Fainine*)

Location: *SW $\frac{1}{4}$ Sec. 29, T.19N., R.10E., MDBM, Sierra Co. (2,24)

Description: eight tons of 45–48% Cr_2O_3 mined in 1918

Geology: chromite lens in serpentine

Name: Evans

Location: *Sec. 29, T.19N., R.10E., MDBM, Sierra Co. (24)

Description: four tons mined from a pit in 1918

Geology: chromite lens in serpentine

Name: Milton

Location: *NE $\frac{1}{4}$ (?) Sec. 4, T.19N., R.12E., MDBM, Sierra Co. (2,24)

Description: 82 tons containing about 40% Cr_2O_3 mined from two pits in 1941; about 100 tons stockpiled on property, and 50 tons developed but not mined as of 1953; selected sample from dump assayed 40.60% Cr_2O_3 , 11.76% Fe, 0.22% SiO_2 , and 0.10% P with a Cr:Fe of 2.36:1

Geology: chromite lenses in serpentinized ultramafic rocks

Name: North Star (*Red Mountain*)

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 21, T.20N., R.7E., MDBM, Butte Co. (24)

Description: about 135 tons of 36–39% Cr_2O_3 mined from trenches during World Wars I and II; World War II chromite assayed 36.12% Cr_2O_3 and 11.35% Fe with a Cr:Fe of 2.18:1

Geology: irregular chromite lenses in serpentine

Name: Dickey and Dreisbach

Location: *SW $\frac{1}{4}$ Sec. 34, T.20N., R.7E., MDBM, Butte Co. (24)

Description: about 30 tons of 35% Cr_2O_3 mined from trench, 10' deep, during World War I

Geology: disseminated and nodular chromite in serpentine

Name: Green Ridge

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 4, T.21N., R.4E., MDBM, Butte Co. (24)

Description: about 94 tons of 35% Cr_2O_3 mined from two trenches in 1918

Geology: tabular chromite body 60' long by 2' wide by 15' deep in sheared serpentine mass, 300–400' wide and about half a mile long

Name: Hendricks No. 2

Location: *NE $\frac{1}{4}$ Sec. 6, T.21N., R.4E., MDBM, Butte Co. (24)

Description: trench and 120' adit with short raise to trench; about 143 tons concentrated from chromite containing 10% Cr_2O_3

Geology: zone of disseminated chromite 2–10' wide, about 100' long, and over 50' deep in serpentinized ultramafic rocks

Name: Park's Ranch

Location: *S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 7, T.21N., R.4E., MDBM, Butte Co. (24)

Description: about 520 tons mined during World Wars I and II from a trench and extensive underground workings; chromite mined during World War II averaged 37.98% Cr₂O₃, 9.93% Fe, 6.89% SiO₂, and a Cr:Fe of 2.61:1

Geology: pods of chromite in a 200–300' wide serpentinite mass in amphibolite schist

Name: Lone Star

Location: *NE $\frac{1}{4}$ Sec. 10, T.21N., R.6E., MDBM, Butte Co. (24)

Description: about 34 tons mined from a pit and several trenches during World Wars I and II

Geology: several small lenses of chromite in sheared and serpentinitized peridotite

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 11, T.21N., R.6E., MDBM, Butte Co. (1,24)

Description: about 90 tons of 48% Cr₂O₃ mined from several trenches in 1918

Geology: lenses of chromite in serpentinitized ultramafic rocks

Conclusions: shows little promise

Name: Lambert

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 2, T.22N., R.3E., MDBM, Butte Co. (24)

Description: about 2700 tons mined from open pit, two trenches, and several thousand feet of underground workings; active during World Wars I and II, and into the 1950's; ore assayed 40.61–44.83% Cr₂O₃ and 9.35–10.19% Fe with a Cr:Fe of 2.81–3.22:1

Geology: massive chromite lenses and pods in sheared and serpentinitized ultramafic rocks

Name: Stewart

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 1, T.22N., R.4E., MDBM, Butte Co. (24)

Description: 126 tons of 52% Cr₂O₃ mined in 1916

Geology: chromite in serpentinitized ultramafic rocks

Name: King

Location: *N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 1, T.22N., R.4E., MDBM, Butte Co. (24)

Description: 7.2 tons mined from two pits in 1918

Geology: chromite lenses in serpentinitized ultramafic rocks

Name: Stokes

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 1, T.22N., R.4E., MDBM, Butte Co. (24)

Description: about eight tons mined in 1918

Geology: chromite in serpentinitized ultramafic rocks

Name: Reynolds No. 1

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 1, T.22N., R.4E., MDBM, Butte Co. (24)

Description: about 35 tons mined from 75' shaft in 1918

Geology: chromite in serpentinitized ultramafic rocks

Name: Hendricks

Location: *SE $\frac{1}{4}$ Sec. 27, T.22N., R.4E., MDBM, Butte Co. (24)

Description: about one ton mined during World War I

Geology: chromite in serpentinized ultramafic rocks

Name: Lockridge

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 28, T.22N., R.4E., MDBM, Butte Co. (24)

Description: trench

Geology: stringer or a series of small lenses of chromite along a narrow shear zone in serpentinized dunite

Name: War Bond

Location: *Secs. 1, 2, and 12, T.22N., R.5E., MDBM, Butte Co. (24)

Description: about 50 tons of 35% Cr₂O₃ mined from several pits in 1919–20

Geology: chromite float and disseminated chromite in serpentinized ultramafic rocks

Name: Little Hope

Location: *NW $\frac{1}{4}$ Sec. 5, T.22N., R.5E., MDBM, Butte Co. (24)

Description: about 85 tons mined from a trench, an adit, and a pit during 1942–43; assayed 41.15% Cr₂O₃ and 11.18% Fe with a Cr:Fe of 2.52:1

Geology: massive chromite in serpentinized dunite

Name: Reynolds No. 2

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 6, T.22N., R.5E., MDBM, Butte Co. (24)

Description: over ten tons mined during World War I

Geology: chromite in serpentinized ultramafic rocks

Name: Liberty Bond

Location: *SW $\frac{1}{4}$ Sec. 8, T.22N., R.5E., MDBM, Butte Co. (24)

Description: about 43 tons of 28% Cr₂O₃ mined in 1918

Geology: disseminated chromite in serpentinized ultramafic rocks

Name: Swayne

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 9, T.22N., R.5E., Butte Co. (24)

Description: about 900 tons of 30–34% Cr₂O₃ mined from a trench and underground workings during World War I

Geology: banded-planar chromite in serpentinized ultramafic rocks

Name: Section 13

Location: *NE $\frac{1}{4}$ Sec. 13, T.22N., R.5E., MDBM, Butte Co. (24)

Description: about 70 tons of 20–30% Cr₂O₃ mined from a trench in 1918

Geology: disseminated chromite in serpentinized ultramafic rocks

Name: Miller

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 30, T.22N., R.5E., MDBM, Butte Co. (24)

Description: four shallow trenches

Geology: disseminated chromite in serpentinized ultramafic rocks

- Location:* NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 31, T.22N., R.5E., MDBM, Butte Co. (1,24)
- Description:* explored by two trenches during World War I; two selected samples assayed 27.99–29.81% Cr₂O₃ and 12.84–11.66% Fe; panned concentrates of these samples contained 42.40–42.25% Cr₂O₃ and 14.90–15.50% Fe with a Cr:Fe of 1.93–1.88:1
- Geology:* zone of fine-grained disseminated chromite, about 400' long, 5' wide, and 200' deep in serpentized ultramafic rocks
- Conclusions:* reserves of about 20,000 tons of 10–15% Cr₂O₃
- Name:* River Side
- Location:* *NW $\frac{1}{4}$ Sec. 32, T.22N., R.5E., MDBM, Butte Co. (24)
- Description:* ten tons mined from pits in 1943
- Geology:* chromite in serpentized ultramafic rocks
- Name:* Parkeson
- Location:* *SE $\frac{1}{4}$ (?)SE $\frac{1}{4}$ Sec. 20, T.23N., R.4E., MDBM, Butte Co. (24)
- Description:* about 31 tons shipped from deposit in 1943; assayed 41.27% Cr₂O₃ and 11.82% Fe with a Cr:Fe of 2.39:1
- Geology:* chromite in serpentized ultramafic rocks
- Name:* Simmons
- Location:* *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 26, T.23N., R.4E., MDBM, Butte Co. (24)
- Description:* about 77 tons of 35.86% Cr₂O₃ mined from an adit and shaft during World War I
- Geology:* chromite in serpentized ultramafic rocks
- Name:* Christian Place
- Location:* *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 32, T.23N., R.4E., MDBM, Butte Co. (24)
- Description:* about 31 tons mined from several trenches and two pits in 1943; assayed 52.97% Cr₂O₃ and 12.17% Fe with a Cr:Fe of 2.98:1
- Geology:* irregular chromite mass in red clay and soil regolith resulting from weathering of serpentized ultramafic rocks
- Location:* SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 35, T.23N., R.4E., MDBM, Butte Co. (1,24)
- Description:* about 201 tons mined from a trench and a drift leading to an underhand stope during World War I; majority of ore assayed 45–50% Cr₂O₃ with some 28% Cr₂O₃ disseminated material reported
- Geology:* 100–120' zone containing pods and stringers of massive chromite and bands and streaks of disseminated chromite in dunite
- Conclusions:* warrants additional prospecting
- Name:* Twin Cedars
- Location:* *SE $\frac{1}{4}$ Sec. 36, T.23N., R.4E., MDBM, Butte Co. (24)
- Description:* about 20 tons of shipping ore mined from trench in 1917
- Geology:* chromite in serpentized ultramafic rocks

Name: Lucky Bill

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 36, T.23N., R.4E., MDBM, Butte Co. (24)

Description: about 45 tons mined from two trenches during World War I

Geology: chromite in serpentinized ultramafic rocks

Name: King

Location: *S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 32, T.23N., R.5E., MDBM, Butte Co. (24)

Description: ten tons mined from pit in 1918

Geology: chromite lens in serpentinized ultramafic rocks

Name: Big Pine

Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 34, T.23N., R.5E., MDBM, Butte Co. (24)

Description: about 200–250 tons of disseminated chromite mined from trench and pit during World War I; several thousand tons of milling-grade chromite reportedly present; selected samples assayed 28–36% Cr₂O₃

Geology: disseminated chromite in serpentinized ultramafic rocks

Name: Mary Jane

Location: *NW $\frac{1}{4}$ Sec. 31, T.23N., R.6E., MDBM, Butte Co. (24)

Description: about 41 tons mined during World War II; assayed 36.83% Cr₂O₃ and 12.78% Fe with a Cr:Fe of 1.97:1

Geology: chromite in serpentinized ultramafic rocks

OCCURRENCES

Name: Taylor

Location: *SE $\frac{1}{4}$ Sec. 6, T.21N., R.4E., MDBM, Butte Co. (24)

Description: reported reserves of 200–400 tons of 8–15% Cr₂O₃

Geology: disseminated chromite in serpentinized ultramafic rocks

COPPER [Cu]

MINES AND PROSPECTS

Name: Bull Run (*Edison*)

Location: *NE $\frac{1}{4}$ Sec. 6, T.17N., R.10E., MDBM, Nevada Co. (8,19)

Description: 45' shaft and 240' adit; exploration supposedly for Cu

Geology: sheared amphibolite

Name: Giant King

Location: *E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 13, T.17N., R.10E., MDBM, Nevada Co.
(See under METALLICS, Gold)

Name: Arctic (includes Mountain View and Washington Chief Consolidated)

Location: *N $\frac{1}{2}$ Sec. 2, T.17N., R.11E., and Lot 55 Sec. 35 and SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 36, T.18N., R.11E., MDBM, Nevada Co.
(See under METALLICS, Gold)

Name: Alaska (Sierra Alaska)

Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 5, and NW $\frac{1}{4}$ Sec. 8, T.18N., R.9E., MDBM, Sierra Co.
(See under METALLICS, Gold)

Name: Sixteen-to-One (includes Eclipse, Ophir, Tightner, and Twenty-One)

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.18N., R.10E., and SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co.
(See under METALLICS, Gold)

Name: Oriental

Location: *E $\frac{1}{2}$ NW $\frac{1}{4}$ and W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 4, T. 18N., R.10E., and E $\frac{1}{2}$ SW $\frac{1}{4}$ and SE $\frac{1}{4}$ Sec. 33, T.19N., R.10E., MDBM, Sierra Co.
(See under METALLICS, Gold)

Name: Del Norte and Scotia

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., and SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.19N., R.10E., MDBM, Sierra Co.
(See under METALLICS, Gold)

Name: Spanish (includes Upper Spanish)

Location: *W $\frac{1}{2}$ Sec. 19, and Secs. 30 and 31, T.18N., R.11E., MDBM, Nevada Co.
(See under METALLICS, Gold)

Name: Jeff Molly No. 1

Location: *E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 12, T.18N., R.12E., MDBM, Nevada Co.

(1)

Description: pit

Geology: steeply dipping 4–5' wide vein strikes E-W in metavolcanic rocks and contains magnetite, pyrrhotite, pyrite, and chalcopyrite; near contact with granodiorite pluton

Name: English Mountain

Location: *NW $\frac{1}{4}$ Sec. 6, T.18N., R.13E., MDBM, Nevada Co.

(1,21)

Description: explored by a 500' drift, a 300' drift, and 200' of crosscuts

Geology: lode 50' wide and 1000' long containing bornite, pyrrhotite, pyrite, and marcasite in metavolcanic rocks; partially oxidized to a depth of 250'

Location: SW $\frac{1}{4}$ Sec. 7, T.18N., R.13E., MDBM, Nevada Co.

(1)

Description: 40' adit and several drill holes; two tons mined and stockpiled in 1918; two channel samples across vein assayed 0.315–0.163% Cu, 0.083–0.259% Mo, a trace of Au, and 0.2 oz. Ag

Geology: quartz veins, lenses, and stringers in metavolcanic rocks; veins average about 1' wide and may be traced about 25' on strike; one, 3' wide, strikes N60–70°E and

dips 60°S, a second, 4' wide, strikes N80°E to E-W and dips 40°S, and a third, 1' wide, strikes N80°E and dips steeply S; veins carry pyrite, chalcopyrite, molybdenite, and minor scheelite; molybdenite-bearing quartz stringers emplaced along E-W striking and steeply dipping joint sets in granodiorite

Conclusions: warrants additional exploration

Name: Turner Group

Location: *Sec. 16, T.18N., R.13E., MDBM, Nevada Co.
(See under METALLICS, Gold)

Name: Surcease Group (*includes Surcease, Bunker Hill, and Treasure Hill*)

Location: *Secs. 4, 5, 6, and 7, T.21N., R.5E., MDBM, Butte Co.
(See under METALLICS, Gold)

Name: Big Bend

Location: *SE¼ Sec. 8, T.21N., R.5E., MDBM, Butte Co.
(See under METALLICS, Zinc)

GOLD (lode) [Au]

About \$435,000,000 in gold (lode and placer) has been produced from Butte, Nevada, Placer, and Sierra Counties between 1880 and 1960. Percent of total gold value for each year and historical events that affected gold production over this 80-year period are shown in Figure 6. About \$225,000,000 of this total came from the Grass Valley district which is outside the area of this report. Of the remaining \$210,000,000, about \$175,000,000 came from lode gold mines and \$35,000,000 from placer mines.

Significant gold production has resulted from relatively few mines. Figure 7 shows that only eleven mines of over 200 properties listed have produced in excess of \$1,000,000. The Alleghany district, which has produced about \$60,000,000, contained the only two major lode gold mines operating in California in 1961. Many deposits have been extensively worked and have shown little variation in gold content to depths of several thousand feet.

Prior to closing a mine, most operators exploit all available ores and reduce costs by termination of maintenance, exploration, and development. The reduced expenditure often permits the milling of ore of submarginal value. Therefore, it would be unrealistic to expect the re-examination of an idle property would reflect shoot dimensions or tenor typical of that property during its normal operative period.

The decline in lode-gold mining in recent years is not necessarily due to a lack of gold, but rather to a combination of adverse economic factors which reflect a continued rise in the costs of conventional production methods coupled with a fixed sale price. Little attention has been given in this area in recent years to improvement of conventional methods or development of new methods. Research and development, however, have been successfully applied to other industries to reduce costs, and would probably have a beneficial effect if directed to lode-gold mining.

MINES AND PROSPECTS

Name: Monarch

Location: *NW¼SW¼ Sec. 14, and SW¼NE¼ Sec. 15, T.13N., R.9E., MDBM, Placer Co. (1)

GOLD PRODUCTION

From Butte, Nevada, Placer, and Sierra Counties

AND

HISTORICAL EVENTS AFFECTING PRODUCTION

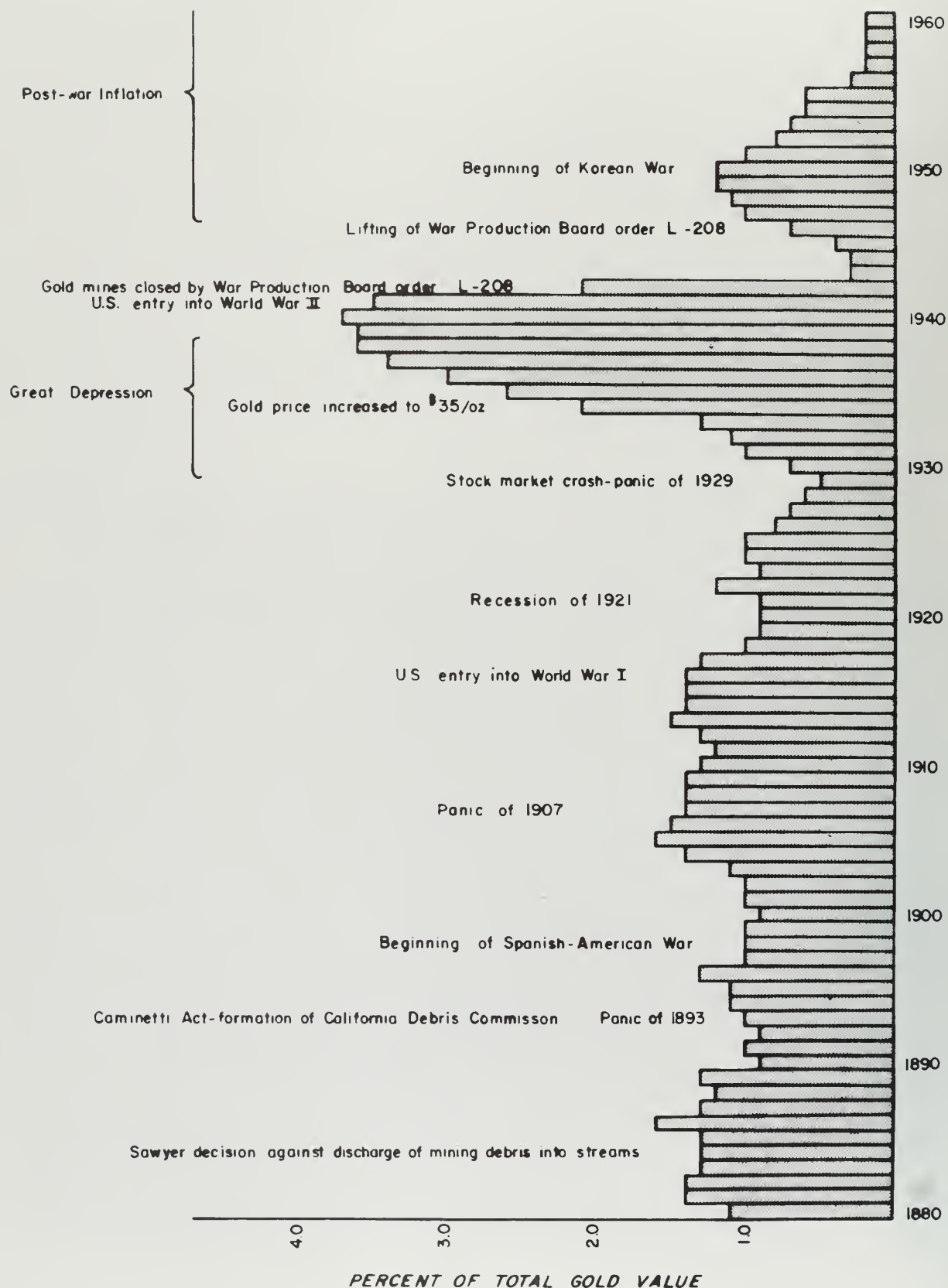
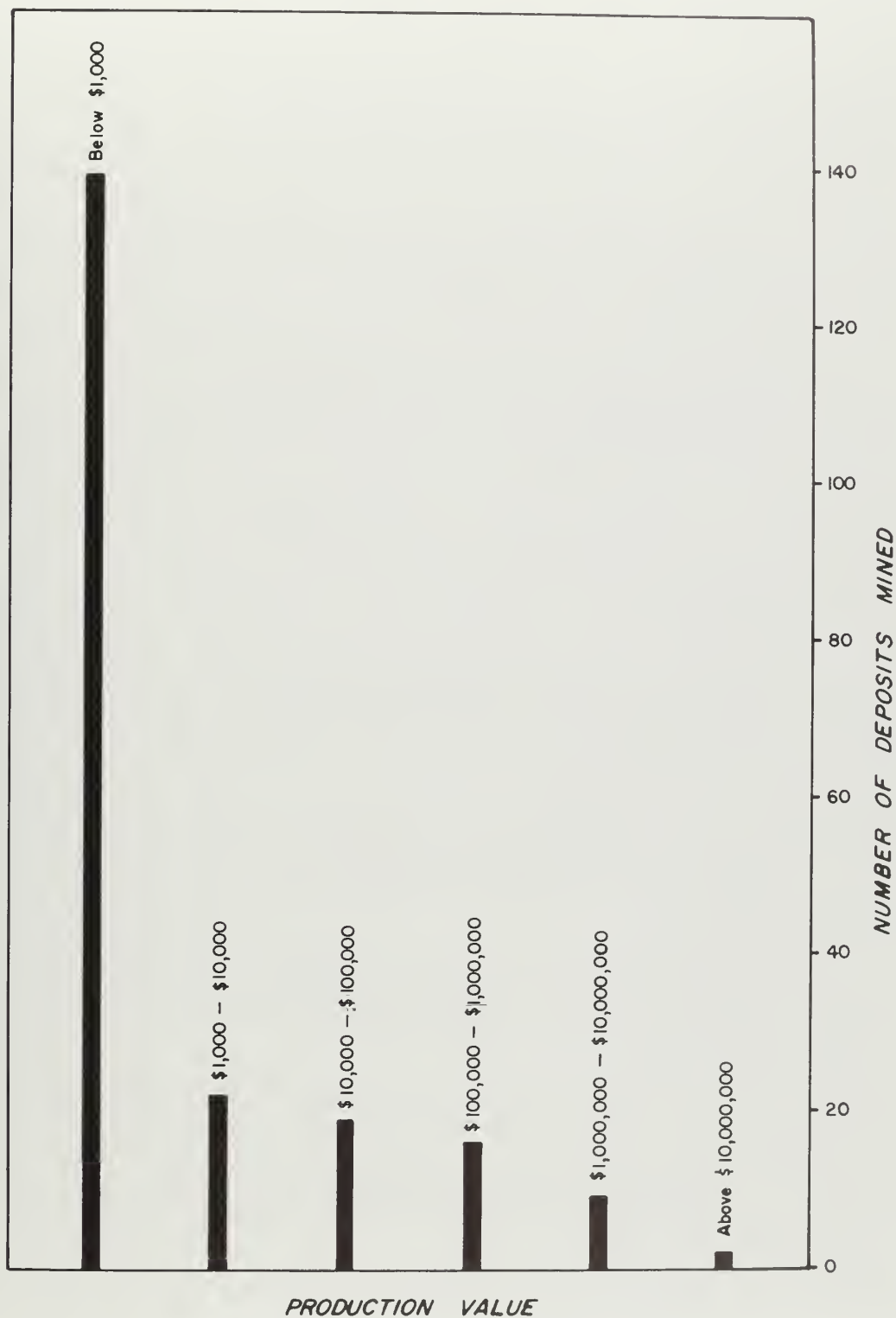


Figure 6

PRODUCTION VALUE VS. NUMBER OF DEPOSITS MINED FOR LODE GOLD



SOUTHERN PACIFIC
LAND DEPARTMENT

Figure 7

Description: 100' trench, several pits, and a drift; in part placered

Geology: quartz stringers in slate

Name: Josephine

Location: *W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 8, T.13N., R.11E., MDBM, El Dorado Co. (1)

Description: five drifts; operated during 1890's, 1920, and 1930's

Geology: 6' quartz vein in slate and serpentinite

Location: *SW $\frac{1}{4}$ Sec. 19, and NW $\frac{1}{4}$ Sec. 30, T.14N., R.7E., MDBM, Nevada Co. (1)

Description: two shafts

Geology: sheared and pyritized metavolcanic rocks

Name: Hibber

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 32, T.14N., R.7E., MDBM, Nevada Co. (1)

Description: shaft and two pits

Geology: gossan in metavolcanic rocks

Name: Bauer

Location: *SE $\frac{1}{4}$ Sec. 24, and NE $\frac{1}{4}$ Sec. 25, T.14N., R.9E., MDBM, Placer Co. (1,5)

Description: two adits; reported to contain 0.1–0.17 oz. Au

Geology: pyritized black slate

Name: Annie Laurie

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 25, T.14N., R.9E., MDBM, Placer Co. (1,5)

Description: placer operation in early 1900's; several short adits and a pit opened during late 1920's and early 1930's

Geology: quartz lode in serpentinitized ultramafic rocks and along fault contact between slate and schist; quartz and adjacent bedrock contain disseminated sulfides

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 19, T.14N., R.10E., MDBM, Placer Co. (1)

Description: adit on vein

Geology: quartz vein in slate

Location: *W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 30, T.14N., R.10E., MDBM, Placer Co. (1)

Description: adit on vein

Geology: quartz vein in slate

Name: Three Queens (*Four Aces*)

Location: *SE $\frac{1}{4}$ Sec. 31, T.14N., R.11E., MDBM, Placer Co. (1,18)

Description: over \$100,000 in gold reported mined via several adits; worked in late 1800's and sporadically into 1930's

Geology: small shoots containing gold in 3–4' quartz vein that strikes NW and dips 30–40°NE in slate; mariposite, graphite, and ankerite in gangue

Name: Noonchester

Location: *NE $\frac{1}{4}$ Sec. 14, T.14N., R.16E., MDBM, Placer Co. (1)

Description: short adit and several pits; active 1949

Geology: auriferous pyrite associated with granitic dikes that strike NW in metamorphic rocks

Location: *N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 2, T.15N., R.9E., MDBM, Placer Co. (1)

Description: two adits

Geology: sulfides disseminated in slate and serpentinized ultramafic rocks

Name: Gem Consolidated

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 2, and S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 3, T.15N., R.11E., MDBM, Placer Co. (1)

Description: adit and shaft

Geology: sulfides in 10–20' wide lode composed of quartz veins and stringers in slate and schist

Name: American Eagle

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 2, and NE $\frac{1}{4}$ SE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.15N., R.11E., MDBM, Placer Co. (1,18)

Description: three adits

Geology: pyritiferous quartz veins in slate

Name: Blackhawk

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.15N., R.11E., MDBM, Placer Co. (18)

Description: two adits; first operated at turn of century and reopened in 1927; 110 tons produced in 1929–30 and several hundred tons reported in 1934

Geology: quartz lode associated with andesite sill in slate and schist

Name: Pioneer

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 3, T.15N., R.11E., MDBM, Placer Co. (1,13,18)

Description: deepest and most extensive lode gold mine in Placer Co.; worked 1854–1862, 1880–1900, and 1911–1922, reportedly yielding over \$900,000 subsequent to 1889; 0.44–1.6 oz. Au reported mined 1897–98

Geology: two veins developed, the Lynn and the Pioneer; Lynn which was principal producer strikes N32°W, dips 70°E, and carries gold and auriferous sulfides in shoots; vein averages 4' wide and follows an andesite sill in slate and schist

Name: Dorer

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.15N., R.11E., MDBM, Placer Co. (1,18)

Description: about \$20,000 reported mined via several adits 1888–1904; activity reported during 1930's

Geology: gold and auriferous sulfides in 4' wide and 150' long quartz lode in slate

Name: Central

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.15N., R.11E., MDBM, Placer Co. (1,18)

Description: about \$20,000 reportedly produced 1897–1903

Geology: auriferous sulfides in quartz lens associated with andesite sills in slate and schist

Name: Southern Cross

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ and S $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.15N., R.11E., MDBM, Placer Co. (13,18)

Description: 4800 tons of 0.15–0.25 oz. Au reported mined via several adits 1903–08

Geology: three veins, the West, the Southern Cross, and the Poole in slate and schist; Poole vein on strike projection north from Lynn vein at Pioneer; vein system can be traced over 2500' on strike

Name: Rawhide

Location: *N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 4, T.15N., R.11E., MDBM, Placer Co. (1)

Description: about \$1,250,000 of 0.2 oz. Au reported mined via five adits 1899–1918, and 1934–41

Geology: gold and auriferous sulfides in 4–140' wide lode composed of quartz veins and stringers associated with andesite sills in slate and schist

Name: Golden West

Location: *Secs. 34 and 35, T.16N., R.11E., MDBM, Placer Co. (18)

Description: two adits and a 100' shaft driven 1901

Geology: quartz stringers in slate

Name: Marrs

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.16N., R.12E., MDBM, Placer Co. (1,13,18)

Description: two adits and a shaft

Geology: auriferous sulfides in two parallel quartz veins in slate and quartzite; maximum vein widths of 3'

Name: La Trinidad (*Sterrett*)

Location: *SE $\frac{1}{4}$ Sec. 34, T.16N., R.13E., MDBM, Placer Co. (1,18)

Description: shaft and two adits, one of which drifted on vein for 900'; active 1897–1905; oxidized portions of vein most productive

Geology: sulfide-bearing quartz veins, 2–8' wide, in calcareous slate and metamorphosed tuff

Name: Wabena (*Wubben*)

Location: SW $\frac{1}{4}$ Sec. 29, T.16N., R.14E., MDBM, Placer Co. (1,18)

Description: two adits on vein, one 75' long, and several pits; sulfide ore mined from pits in 1934; selected vein samples assayed 0.02–0.24 oz. Au and a trace to 0.10 oz. Ag; ore bin sample assayed 0.81 oz. Au and 2.30 oz. Ag

Geology: gold and auriferous sulfides in 1–2' quartz vein that strikes NW and dips 45°NE in metavolcanic rocks; vein traced 300' on strike

Conclusions: warrants additional exploration

Location: *N $\frac{1}{2}$ Sec. 32, T.16N., R.14E., MDBM, Placer Co. (1)

Description: incline and several pits

Geology: sulfides in 2–24" wide silicified zone that strikes WNW and dips 35–55°S in metavolcanic rocks

Name: Lost Emigrant

Location: *SW $\frac{1}{4}$ Sec. 32, T.16N., R.14E., MDBM, Placer Co. (1,12)

Description: opened about 1900; mined during 1950's from several adits and an incline

Geology: sulfides in 1' wide quartz lode in shear zone in metavolcanic rocks; vein traced over 1000'

Name: Paine Brothers

Location: *N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 15, T.17N., R.9E., MDBM, Nevada Co. (1,25)

Description: \$1200 in "specimen" gold reported

Geology: silica gossan associated with diabase dikes in argillite

Name: Red Point

Location: *E $\frac{1}{2}$ Sec. 1, T.17N., R.10E., MDBM, Nevada Co. (13,19,21)

Description: extent of workings unknown

Geology: quartz stringers in sheared serpentinite; gold reported in ankerite and dolomite alterations in serpentinite

Name: Fairview

Location: *SE $\frac{1}{4}$ Sec. 2, T.17N., R.10E., MDBM, Nevada Co. (8,19,21)

Description: 375' adit on vein; 0.2 oz. Au reported

Geology: free gold and auriferous sulfides in vein, to 12' wide, with schist hanging wall and serpentinite footwall

Name: Red Ledge

Location: *Sec. 12, and E $\frac{1}{2}$ Sec. 13, T.17N., R.10E., MDBM, Nevada Co. (1,19,21)

Description: more than \$25,000 in "specimen" gold reported mined via 50' adit to vein over a long period of time

Geology: gold-bearing quartz lode along major fault between serpentinized ultramafic rocks and amphibole schist of the Tightner fm.; 10-30' lode extends about 8000'; gold occurs as leaves and plates in quartz often accompanied by mariposite and ankerite gangue

Name: Giant King

Location: *E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 13, T.17N., R.10E., MDBM, Nevada Co. (8,10,19,21)

Description: developed prior to 1896 via two adits to vein; first reported production in 1901; during 1936-39 about 2800 tons reported concentrated to 102 tons containing recoverable Au, Ag, Cu, and Pb; 0.26 oz. Au reported from 6' vein mined in 1940

Geology: 2-7' wide quartz veins, containing to 3% auriferous sulfides in slate of Tightner fm. near junction of two faults, one of which is a major fault between the Tightner fm. and serpentinized ultramafic rocks

Location: N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 17, T.17N., R.10E., MDBM, Nevada Co. (1)

Description: two adits on vein

Geology: 2-4' wide glassy quartz vein strikes N75°E and dips almost vertically in slate

Conclusions: shows little promise

Name: Arctic (includes Mountain View and Washington Chief Consolidated)

Location: *N $\frac{1}{2}$ Sec. 2, T.17N., R.11E., and in Lot 55 Sec. 35 and SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 36, T.18N., R.11E., MDBM, Nevada Co. (1,8,13,17,19,21)

Description: 7800 tons of 0.17–0.34 oz. Au reported mined 1938–41 via a 950' adit to vein and a 620' adit on vein at Arctic and Mountain View and from a 35' deep trench at Washington Chief Consolidated; concentrates contained recoverable Cu and Zn

Geology: 4' wide Arctic vein locally assays 0.23 oz. Au; 3' wide Cosmopolitan vein and four other smaller veins at Arctic and Mountain View; vein to 2' wide in a 4–5' shear zone at Washington Chief Consolidated; quartz veins reported to carry less than 10% sulfides at Arctic-Mountain View; auriferous sulfides in a calcite-barite-quartz gangue at Washington Chief Consolidated; all veins in granite porphyry

Name: Columbia Group

Location: *Sec. 4, T.17N., R.11E., MDBM, Nevada Co. (19,21)

Description: four adits on vein; active prior to 1920; 0.25–0.30 oz. Au reported from lode

Geology: gold and about 1% sulfides in four quartz veins in quartzite and phyllite; lodes 5–20' wide have an average width of about 6'

Name: Washington (German) Consolidated

Location: *Sec. 9, T.17N., R.11E., MDBM, Nevada Co. (1,13,17,21)

Description: produced around 1890 via 400' shaft on vein

Geology: gold and auriferous sulfides in several quartz veins with cumulative 4' width in slate; sulfides constitute less than 1% of vein material

Name: Starr Group

Location: *Sec. 9, T.17N., R.11E., MDBM, Nevada Co. (19,21)

Description: production unknown

Geology: free gold and auriferous sulfides in quartz lode in quartzite and phyllite

Name: Blue Jay

Location: *NE $\frac{1}{4}$ Sec. 11(?), T.17N., R.11E., MDBM, Nevada Co. (1,21)

Description: adit leading to 300' winze

Geology: 4' wide quartz vein in granite

Name: Yuba Consolidated (Central and Gray Eagle Group, Hathaway Ledge, Marietta, Mayflower, Rising Sun)

Location: *Secs. 11, 14, and 15, T.17N., R.11E., MDBM, Nevada Co. (1,19)

Description: over \$2,000,000 in gold and silver reported mined via a 1600' adit to vein and a 960' shaft; many adits and shafts explore the area, but principal production from Yuba; Mayflower \$6–8 per ton in Au + Ag reported from lode

Geology: gold and about 1% base-metal sulfides in three major and nine smaller quartz veins in shear zone in granite

Name: Dutretre Group

Location: *Sec. 12, and NW $\frac{1}{4}$ Sec. 13, T.17N., R.11E., MDBM, Nevada Co. (19)

Description: production unknown

Geology: quartz vein in granite

Name: Eagle Bird (*Gold Bug*)

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 12, NW $\frac{1}{4}$ Sec. 13 (Eagle Bird), and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 14 (Gold Bug), T.17N., R.11E., MDBM, Nevada Co. (1,21)

Description: first activity reported in 1880's to produce a sulfide-rich ore averaging about 1.25 oz. Au; about 9,500 oz. Au and 4000 oz. Ag reported mined 1890–91, and 4000 tons of Au-Ag ore valued at \$1.00–11.00 per ton 1915–32; 1100' of vein worked via an 850' incline and two adits

Geology: 8' wide quartz vein contains a 500' shoot that carries gold and auriferous sulfides; vein strikes N70°W and dips 70–80°N in granite

Name: Last Chance

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 14, and Lot 45 in NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 23, T.17N., R.11E., MDBM, Nevada Co. (1)

Description: adit to vein, trench, and pit; gold may be panned from mill tailings

Geology: about 1% auriferous sulfides in 4–5' wide quartz vein that strikes N6–10°E and dips 60°E in porphyritic granite; sulfides include pyrite, galena, and sphalerite; vein traced about 800' on strike; six additional veins reported in workings

Name: Carlisle

Location: *Sec. 4, and Lots 2, 4, and 5 in Sec. 9, T.17N., R.13E., MDBM, Nevada Co. (1,21)

Description: several adits and cuts

Geology: auriferous sulfides in three quartz-tourmaline veins in granodiorite; largest vein about 3' wide

Location: *N $\frac{1}{2}$ S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 17, T.17N., R.13E., MDBM, Nevada Co. (1,17,21)

Description: several adits and numerous pits

Geology: sulfide-bearing quartz-tourmaline veins to 4' wide in diorite; sulfides compose 15–20% of vein

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 20, T.17N., R.13E., MDBM, Nevada Co. (1)

Description: short adit and several pits

Geology: 6' wide lenses of disseminated sulfides and quartz in 75–100' wide epidote-garnet skarn zone in metamorphic rocks

Name: Tippecanoe

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4, T.18N., R.9E., MDBM, Sierra Co. (1,2)

Description: two inclines on vein

Geology: auriferous sulfides in 3' wide quartz vein that strikes N55°E and dips 50°S in amphibolite

Name: Beame

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 4, T.18N., R.9E., MDBM, Sierra Co. (1)

Description: adit

Geology: sulfides and Fe oxides in 1-2' wide quartz vein that strikes N35°W and dips vertically in highly weathered siliceous argillite

Name: Alaska (*Sierra Alaska*)

Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 5, and NW $\frac{1}{4}$ Sec. 8, T.18N., R.9E., MDBM, Sierra Co. (2,10,13)

Description: intermittently mined between 1893 and 1953; about \$1,000,000 reported produced from 100,000 tons; 48,000 lbs. of Pb and 8,000 lbs. of Cu reported as by-products; Ag:Cu of 5:6; 720' shaft provided access to extensive workings

Geology: gold and auriferous sulfides in 3' wide near-vertical quartz vein that strikes NE in siliceous argillite

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 8, T.18N., R.9E., MDBM, Sierra Co. (1)

Description: adit

Geology: hydrothermally altered zone in metavolcanic rocks

Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ and SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 8, T.18N., R.9E., MDBM, Sierra Co. (1)

Description: adit

Geology: sulfides and Fe oxides in 4' wide quartz vein within a 7' hydrothermally altered zone in siliceous argillite

Name: Bowman

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 10, T.18N., R.9E., MDBM, Sierra Co. (1)

Description: 1200' long trench

Geology: quartz vein striking N30-40°W in highly weathered metamorphic rocks

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 12, T.18N., R.9E., MDBM, Sierra Co. (1)

Description: a short adit on each of two veins

Geology: two vertical veins in slate; westernmost vein is 3' wide and strikes N10°E, other vein is 6-8' wide and strikes N5°W

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 19, T.18N., R.9E., MDBM, Sierra Co. (1)

Description: adit trends N30°W

Geology: vein covered; host rock is deeply weathered diorite

Conclusions: shows little promise

Name: Delhi

Location: *Sec. 20, T.18N., R.9E., MDBM, Nevada Co. (1,13,19,21)

Description: over \$1,500,000 reported mined 1890-1914 from a 60° incline and several adits on Delhi vein and a 380' shaft on Gothardt vein

Geology: auriferous sulfides in 2' wide Delhi vein which strikes N40°E and dips 60°E in siliceous argillite

Name: Plumbago

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 1, Secs. 2 and 12, T.18N., R.10E., MDBM, Sierra Co. (1,2,9,13,17)

Description: over \$2,600,000 reported mined via adits from extensive workings from 1850's to 1932; active 1959

Geology: gold and auriferous sulfides in 2–4' wide quartz vein that strikes about N50°W and dips about 40°N in gabbro, serpentinite, and amphibolite schist of Tightner fm.

Name: Arcade

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 2, T.18N., R.10E., MDBM, Sierra Co. (9)

Description: two adits and a 50' winze

Geology: three veins along faults in amphibolite schist of the Tightner fm. and in gabbro; evidence of post-mineral faulting; two veins strike NW and dip NE; the third strikes NNW and dips E

Name: Cooper

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 2, T.18N., R.10E., MDBM, Sierra Co. (9)

Description: two adits

Geology: iron oxides and chalcedony stringers in vuggy quartz vein in gabbro

Name: Hope (*Minnesota Development Group*)

Location: *SW $\frac{1}{4}$ Sec. 2, T.18N., R.10E., MDBM, Sierra Co. (2)

Description: two adits to vein

Geology: several parallel quartz veins, 2–10' wide, with serpentinite footwalls and slate hanging walls; veins average about 3' wide, strike WNW, and dip N

Name: Central (*Edwards Group, Bonanza*)

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 2, T.18N., R.10E., MDBM, Sierra Co. (2,8,9)

Description: “high-grade” gold ore reported mined from several adits and pits

Geology: NW-striking quartz vein in amphibolite schist of Tightner fm.; lode parallels serpentinite and is locally offset by a serpentinite dike

Name: Eldorado

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 2, NE $\frac{1}{4}$ Sec. 3, T.18N., R.10E., and SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 34, SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T.19N., R.10E., MDBM, Sierra Co. (4,9)

Description: \$325,000 in 0.35–0.74 oz. Au reported mined via six adits from extensive workings prior to 1932; activity reported 1959

Geology: gold and auriferous sulfides in three E-dipping quartz veins; Eldorado vein strikes N50°W–N30°E, Middle vein strikes N55°W, and Bullion vein strikes N30–40°W; all veins are along reverse faults which evidence post-mineral movement; host rock is amphibolite schist of Tightner fm., locally intruded by gabbro, serpentinite, and aplite dikes

Name: Rainbow

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.18N., R.10E., MDBM, Sierra Co. (2,9)

Description: about \$2,200,000 in gold reported mined prior to 1932 from three adits and an incline leading to extensive workings

Geology: gold and auriferous sulfides in three veins; Rainbow vein strikes NW and dips NE as does Parallel vein; Clinton vein strikes N-S and dips steeply W; all three are along reverse faults in chert, slate, amphibolite, and metaconglomerate, except at their southern ends where they are in amphibolite schist of Tightner fm.; veins cut by serpentinite

and gabbro dikes; post-mineral movement evident along faults; amphibolite schist adjacent to veins altered to mariposite, ankerite, and siderite

Name: Mariposa

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.18N., R.10E., MDBM, Sierra Co. (2,9)

Description: over \$50,000 reported mined via a 1350' adit

Geology: 2' wide quartz vein along fault that strikes N48°W and dips 48–60°N in amphibolite schist of Tighner fm.; schist on either side of vein intruded by irregular serpentinite and gabbro dikes

Name: Rainbow Extension

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.18N., R.10E., MDBM, Sierra Co. (2,9)

Description: operated prior to 1932 from five adits

Geology: two quartz veins strike N30°W and dip 50–75°E in amphibolite schist of Tighner fm.

Name: General Sherman

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 3, and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., MDBM, Sierra Co. (9,16)

Description: 1200' adit

Geology: irregular quartz vein strikes N5°W and dips about 55°W in gabbro intruded by granite stringers

Name: Sixteen-to-One (includes Eclipse, Ophir, Tighner, and Twenty-One)

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.18N., R.10E., and SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co. (1,2,4,8,9,10)

Description: most productive mine in Alleghany area; located 1896 and continuously active 1908–63; over 730,000 oz. gold plus by-product silver, copper, lead, and zinc reported mined prior to 1947; extensive workings (about ten miles) mined via several inclines and numerous adits

Geology: Sixteen-to-One vein occupies a reverse fault with movement of 300–900', and usually is from 5–15' wide reaching a 50' maximum width; vein strikes N30°W toward its southern end, bending to N-S in its northern extension; it dips 20–60°E, being most productive in areas of 25–30° dip; lodes carry gold and auriferous base-metal sulfides; host rock is almost wholly amphibolite schist of Tighner fm. with meta-conglomerate and chert of Kanaka fm. in upper workings; both formations are intruded by serpentinitized and unserpentinitized mafic and ultramafic dikes

Name: Gold Crown (Wonder)

Location: *N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 3, T.18N., R.10E., and S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co. (4,9)

Description: intermittently active 1922–59; 104' shaft and several adits

Geology: gold and auriferous sulfides in quartz vein that strikes N20–22°W and dips 45–60°W in greenschist and slate; shoots associated with carbonate wallrock alteration

Name: Kenton

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 4, T.18N., R.10E., MDBM, Sierra Co. (1,2,8,9)

Description: \$90,000–175,000 in gold and by-product copper reported mined prior to 1892 from three adits on vein

Geology: quartz vein to 10' wide along fault that strikes N25°E–N30°W and dips 45°E in gabbroic rocks; gold, auriferous sulfides, and mariposite in sugary quartz and quartz breccia produced by repeated movement on fault

Name: Cleveland (*Gray Eagle Group*)

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 4, T.18N., R.10E., MDBM, Sierra Co. (2)

Description: several adits; active 1886 to 1890's

Geology: quartz stringers and lenses in "slate"

Name: Roye-Sum

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., MDBM, Sierra Co. (2,4,9)

Description: 2300' adit

Geology: gold and auriferous sulfides in quartz lenses along shear zone that strikes N30–50°W and dips 50°SW

Name: Frances D.

Location: *NE $\frac{1}{4}$ (?) SE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., MDBM, Sierra Co. (9)

Description: 150' adit and several pits

Geology: quartz vein strikes N30°W and dips 50°W in gabbroic rocks

Name: Spoohn

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., MDBM, Sierra Co. (9)

Description: apparently extensive underground workings

Geology: quartz veins strike N15–50°W and dip 45–70°W in gabbroic rocks

Name: Oriental

Location: *E $\frac{1}{2}$ NW $\frac{1}{4}$ and W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., and E $\frac{1}{2}$ SW $\frac{1}{4}$ and SE $\frac{1}{4}$ Sec. 33, T.19N., R.10E., MDBM, Sierra Co. (4,8,9)

Description: about \$4,250,000 in gold and by-product copper reported mined prior to 1956 from an incline leading to extensive workings; activity during 1950's confined to a second vein that parallels the Oriental

Geology: gold and auriferous sulfides in quartz vein along reverse fault with displacement of 120–200'; Oriental vein pinches and swells to a maximum width of 20', strikes EW–N65°W and dips 28–50°N in schistose gabbro, serpentinite, and quartzite; carbonate-mariposite wallrock alteration common near richer shoots

Name: Del Norte and Scotia

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., and SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.19N., R.10E., MDBM, Sierra Co. (2,8,9,10)

Description: early mining from a 75' incline on vein and a 110' adit on vein; about 2900 tons reported mined 1931–34 was concentrated to 59 tons containing gold and by-product silver, lead, and copper; Au:Ag of 8:3

Geology: free gold and auriferous sulfides in 1' wide quartz vein that strikes E-W and dips at low angle N in gabbro and serpentinite

Name: Shannon

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 6, T.18N., R.10E., MDBM, Sierra Co. (1)

Description: adit and several pits

Geology: quartz vein strikes N20°E and dips 45°S in serpentinized mafic and ultramafic rocks

Name: Queen of Sheba

Location: *W $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 9, T.18N., R.10E., MDBM, Sierra Co. (1)

Description: 200' adit to vein

Geology: 4' wide sulfide-bearing quartz vein that strikes N35–45°W and dips 30–45°E can be traced about 700' along strike in gneissic gabbro

Name: Maryland

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 10, T.18N., R.10E., MDBM, Sierra Co. (2,9)

Description: two adits and several pits

Geology: lode to 18'' wide composed of stringers and lenses of quartz in shear zone that strikes N20–37°W and dips 37°W in schist

Name: Fruitvale

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 10, T.18N., R.10E., MDBM, Sierra Co. (1,22)

Description: 700' adit on vein

Geology: 1–2' wide quartz vein strikes N5°E and dips 65°E in amphibolite schist

Name: Mountain View

Location: *W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 10, T.18N., R.10E., MDBM, Sierra Co. (2,9)

Description: 140' adit and numerous pits

Geology: two discontinuous quartz veins under 18'' wide strike N-S to N22°W and dip 50–82°W in gabbro

Name: Oriflame (*Oriflamme*)

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 10, T.18N., R.10E., MDBM, Sierra Co. (1,2,9)

Description: adit

Geology: gold and auriferous sulfides in three veins; one vein is 6'' wide, strikes N10°W and dips vertically, a second is 1–2' wide, strikes N65°W, and dips 50°N, and the third is 2–3' wide, strikes N65°W, and dips 40–57°N; all veins in metamorphosed tuff and slate

Name: Sleeping Beauty

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 10, T.18N., R.10E., MDBM, Nevada Co. (1)

Description: adit on vein; active during 1930's

Geology: sulfides disseminated in quartz stringer under 6'' wide that strikes N45°W and dips 25°SW in amphibole-chlorite schist and gabbro

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 10 (900' SE of Sleeping Beauty), T.18N., R.10E., MDBM, Nevada Co. (1)

Description: 100' adit to vein and pit

Geology: base-metal sulfides in quartz vein to 1' wide that strikes N40°W and dips 60°W in hornblende-chlorite schist of Tightner fm. and gneissic gabbro

Name: Irelan (*Ireland*)

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 11, T.18N., R.10E., MDBM, Sierra Co. (1,4,9)

Description: about \$500,000 reported mined since 1860 from extensive underground workings and an open pit; active 1956

Geology: free gold in two quartz veins to about 5' wide that strike NW and dip moderately to steeply NE; most productive portions of lode associated with mariposite-carbonate host rock alteration; host rocks are greenstone and schistose gabbro dikes

Name: German Bar

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 11, T.18N., R.10E., MDBM, Nevada Co. (1,9)

Description: about \$200,000 of 0.49 oz. Au reported mined since 1851 from four adits leading to extensive workings

Geology: gold and auriferous sulfides in quartz vein that strikes N70–80°W and dips 40–80°N; gabbro hanging wall and metaconglomerate, slate, and schist footwall

Name: Seven Spot (*Lucky Three*)

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 11, T.18N., R.10E., MDBM, Sierra Co. (1)

Description: adit

Geology: 12" wide quartz vein in 30" gouge zone that strikes N20°W and dips 45°E in gabbro

Name: Gold Canyon

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 12, T.18N., R.10E., MDBM, Sierra Co. (1,2,9,13,22)

Description: \$735,000 in gold reported mined from extensive workings via several adits; intermittent activity since 1860; active in 1959

Geology: gold and auriferous sulfides in quartz vein that strikes N60°W and dips 55°N in gabbro near contact with serpentinite; lode on reverse fault showing repeated movement

Name: Twin Sisters

Location: *Sec. 12, T.18N., R.10E., MDBM, Nevada Co. (19,21)

Description: two adits

Geology: quartz vein in amphibole schist and gabbro

Name: Sadie D

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 14, T.18N., R.10E., MDBM, Nevada Co. (1,9)

Description: pit and trench

Geology: base-metal sulfides in vertical quartz vein less than 1' wide that strikes N75°W in gabbro

Name: Metropolitan Group

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ and SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 15, T.18N., R.10E., MDBM, Nevada Co. (19,21)

Description: 1000' adit

Geology: 2–4' wide quartz vein strikes N50°W and dips 68°S in amphibolite schist

Name: Maid of Orleans

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 15, T.18N., R.10E., MDBM, Nevada Co. (1)

Description: adit

Geology: 6'' wide vertical quartz stringer strikes N45°W in amphibolite schist

Name: Keller (*Mayflower, Dewey, Baltimore*)

Location: *W $\frac{1}{2}$ SE $\frac{1}{4}$ and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 5, and W $\frac{1}{2}$ NE $\frac{1}{4}$ and E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 8, T.18N., R.11E., (19,21)
MDBM, Nevada and Sierra Counties

Description: about \$7500 in gold reported mined prior to 1913 via a 1400' adit to vein

Geology: 8' wide quartz vein strikes N18°E and dips 60°E in slate and quartzite

Name: Bayes

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 6, T.18N., R.11E., MDBM, Sierra Co. (1)

Description: 20' adit to vein and 50' of drifts

Geology: base-metal sulfides in a 2' wide vertical quartz vein that strikes N15°W in slate

Name: Culbertson

Location: *E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 8, T.18N., R.11E., MDBM, Nevada Co. (19,21)

Description: mined prior to 1906 via a 260' shaft; 0.34–0.39 oz. Au reported from shoot

Geology: 6–8' wide quartz vein strikes N18°W and dips 60°E in slate

Name: Birchville

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 15, T.18N., R.11E., MDBM, Nevada Co. (1,19,21)

Description: extensive workings via a 400' shaft

Geology: gold and auriferous sulfides in two 1–6' wide quartz veins, the Birchville and the Commercial; Birchville strikes N45°E and dips 45°SE, Commercial strikes N5°E and dips 35–45°E in porphyritic granite wallrock

Name: Rocky Glen (*Stacey, Illinois Consolidated, Annie and Russel Ravine, Blue Cloud Consolidated*)

Location: *Secs. 15 and 16, T.18N., R.11E., MDBM, Nevada Co. (19,21)

Description: over \$300,000 in gold reported mined from Stacey and Illinois lodes prior to 1919; numerous cuts and extensive underground workings; 0.3–0.5 oz. Au reported from samples from four lodes

Geology: four quartz veins, the Stacey, Illinois, Annie, and Russel Ravine, in porphyritic granite; Stacey averages 3.5' wide, strikes N, and dips 45°E; Illinois averages 3.5' wide, strikes N, and dips vertically to steeply E; Annie strikes N and dips 30°E, and Russel Ravine averages 2.5' wide, strikes ENE, and dips at low angle to S

Name: Spotswood

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 16, T.18N., R.11E., MDBM, Nevada Co. (1)

Description: adit

Geology: 1' wide quartz vein strikes N60–70°E with near vertical dip in porphyritic granite

Name: Dillon

Location: *Sec. 16, T.18N., R.11E., MDBM, Nevada Co.

(6,19)

Description: 60' adit on vein

Geology: several quartz veins, one 2.5' wide, that strike NW and dip 65–75°SW in porphyritic granite

Name: Republic (*National*)

Location: *Lots 49 and 50 in W½E½ Sec. 17, T.18N., R.11E., MDBM, Nevada Co.

(1,19,21)

Description: \$200,000 reported mined via three drift adits leading to extensive workings; intermittently active from 1880's to 1950's; quartz reported to contain 0.024–0.3 oz. Au

Geology: gold and auriferous sulfides in 6' wide Republic vein that strikes N-S to N20°W and dips 75°E at surface, flattening to 45°E with depth; host rock is phyllite

Name: Spanish (*includes Upper Spanish*)

Location: *W½ Sec. 19, and Secs. 30 and 31, T.18N., R.11E., MDBM, Nevada Co. (1,10,17,19,21)

Description: several million dollars in gold, silver, and base metals reported mined intermittently from 1883 to World War II; in 1938, 22,990 tons mined yielding 4,542 oz. Au, 45,164 oz. Ag, 234,440 lbs. Pb, and 114,963 lbs. Cu; Ag:Cu of 10:1 and Pb:Cu:Zn of 2:1:1; access to extensive underground workings via about 9000' of adits on veins, a 767' vertical shaft, and a 550' incline; surface mining from open pit 50' wide, over 100' deep, and several hundred feet long

Geology: two lodes in bleached and altered slate, phyllite, quartzite, and quartz-graywacke; wallrocks contain altered diorite intrusives in Sec. 31; the 16-to-1 vein, which is in the W½ Sec. 31, is 4' wide, strikes N10–15°W, dips 80°E, and has a phyllite hanging wall and a chloritized diorite footwall; this vein reported to assay 0.18–0.30 oz. Au, 2–3 oz. Ag, 0.6% Cu, 1.5% Pb, and 2% Zn; a second lode in the E½ Sec. 31, and Secs. 19 and 30 is evidenced by a 20' wide quartz stockwork that reportedly assayed about 0.26 oz. Au and 3.5 oz. Ag; two types of ore were mined, one containing gold and pyrite in quartz and hydrothermally altered host-rock gangue, and the other gold associated with galena, sphalerite, and chalcopyrite in quartz-barite gangue

Name: Ancho-Erie (*Canton, Dandarine, Dublin Bay Consolidated, Edison, Holland*)

Location: *NE¼NE¼ Sec. 20, and NW¼NW¼ Sec. 21, T.18N., R.11E., MDBM, Nevada Co.

(1,10,19,21)

Description: several million dollars in gold and by-product silver, lead, and zinc reported mined prior to 1948 from Ancho vein via a drift adit leading to extensive workings

Geology: gold and auriferous sulfides in four quartz lodes in slate and quartzite; Wheeling lode consists of a 50' width of quartzitic slate; three veins, the West Virginia, Ancho, and Ohio average about 4' wide, strike N, and dip 60–70°E

Name: Azalea

Location: *SE¼NE¼ Sec. 22, T.18N., R.11E., MDBM, Nevada Co.

(1)

Description: shaft, adit, and several pits

Geology: gold and auriferous sulfides in quartz vein that strikes about N10°W in porphyritic granite

Name: Barron

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 23, T.18N., R.11E., MDBM, Nevada Co. (1)

Description: two adits and several pits

Geology: base-metal sulfides in 8-14" quartz vein that strikes N30-40°E with near vertical dip in porphyritic granite

Name: Oakman Group

Location: *Sec. 28, T.18N., R.11E., MDBM, Nevada Co. (19)

Description: active prior to 1907; 1162' crosscut adit intersected vein at 862'

Geology: 4' wide by 350' long shoot in Lady Oakman vein reported to assay about 0.2 oz. Au; this vein is 4-8' wide, strikes N10°W and dips 65°E in slate; four other veins reported that parallel the Lady Oakman

Name: Gaston (*Gaston Ridge Consolidated, Gambrinus*)

Location: *Sec. 28, T.18N., R.11E., MDBM, Nevada Co. (1,17,19,21)

Description: about \$1,000,000 reported mined prior to 1929 from about two miles of workings via a 0.5 mile adit to vein

Geology: eight veins in slate; gold and auriferous sulfides mined from two of these, the Gaston and the Gambrinus; 2-10' wide Gaston vein strikes N20-35°W and dips 40-60°E, and 4-6' wide Gambrinus vein strikes N20°E and dips 70°E

Name: Baltic

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 34, T.18N., R.11E., MDBM, Nevada Co. (1,21)

Description: adit; active prior to 1914

Geology: quartz vein strikes N-S in porphyritic granite; quartz contains under 1% sulfides

Name: Anderson

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 34, T.18N., R.11E., MDBM, Nevada Co. (1)

Description: adit; sulfides in quartz on dump

Geology: vein not exposed at surface; wallrock is deeply weathered porphyritic granite

Name: Ethyl and South Ethyl

Location: *Sec. 34, T.18N., R.11E., MDBM, Nevada Co. (19)

Description: incline on vein

Geology: up to 2.5% sulfides reported in a 2' wide quartz vein that strikes N-S and dips 37°E in porphyritic granite

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 5, T.18N., R.12E., MDBM, Nevada Co. (1)

Description: 50' shaft and several pits

Geology: 3-4' wide vertical quartz vein strikes N70-80°E in porphyritic granite

Name: Yellow Metal

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 9, T.18N., R.12E., MDBM, Nevada Co. (1,21)

Description: adit to vein and numerous trenches; concentrates from mill test on 350 lb. sample quartered from three tons of ore reported to assay about 0.34 oz. Au

Geology: sulfides disseminated in mafic dike that strikes N10°E and dips at low to moderate angles in porphyritic granite; sulfides diffused in host rock adjacent to dike

Name: Turner Group

Location: *Sec. 16, T.18N., R.13E., MDBM, Nevada Co. (21)

Description: pit and several trenches; 4% Cu, 0.44 oz. Au and 5.0 oz. Ag reported

Geology: 16' wide sulfide-bearing quartz vein that strikes NW and dips SW in quartz diorite

Name: Meadow Lake District

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 21, S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 22, SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 26, Secs. 27 and 28, E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 32, T.18N., R.13E., and N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 4, T.17N., R.13E., MDBM, Nevada Co. (1,13,21,28,29)

Description: free milling gold mined during 1860's from oxidized zones in numerous quartz-tourmaline veins; district includes the following properties: the Anderson in SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 26, and SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 27, the Excelsior in NW $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 27, and the Meadow Lake in NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 27; shaft and several trenches at Anderson, inclined open-cut at Excelsior, and two shafts and several trenches at Meadow Lake; numerous pits and trenches explore other veins throughout the district

Geology: sulfides disseminated in discontinuous quartz-tourmaline veins that generally strike NW, dip vertically to steeply NE, and are several feet wide; wallrocks are granodiorite, diorite, and locally metavolcanic rocks

Location: Sec. 33, T.18N., R.13E., MDBM, Nevada Co. (1,13,28,29)

Description: numerous pits, trenches, and several adits explore a series of veins in W $\frac{1}{2}$ of section; seven selected samples assayed a trace to 0.030 oz. Au, 0.1–0.3 oz. Ag, and 0.012–0.050% Cu

Geology: to 10% sulfides in numerous 1–24" wide quartz-tourmaline veins that strike NW and dip vertically or at moderate angles to E and W in granodiorite

Conclusions: shows little promise

Location: *W $\frac{1}{2}$ Sec. 30, T.18N., R.18E., MDBM, Nevada Co. (1,7)

Description: 100' adit on vein

Geology: quartz stringers in volcanic rocks

Name: Phoenix

Location: *N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 28, T.19N., R.5E., MDBM, Butte Co. (1,23)

Description: adit

Geology: 3' wide quartz vein strikes N20°E and dips 60°E in granodiorite

Location: *S $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 35, T.19N., R.5E., MDBM, Butte Co. (1)

Description: pit

Geology: quartz vein strikes E-W in granodiorite

Name: Midas

Location: *N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 4, T.19N., R.6E., MDBM, Butte Co. (1)

Description: several shallow pits

Geology: discontinuous quartz stringers and silicified zones in altered quartz diorite

Name: Denver

Location: *N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 4, T.19N., R.6E., MDBM, Butte Co. (1)

Description: several pits and an adit

Geology: discontinuous quartz stringers and silicified shear zones in amphibolitic hornfels near contact with quartz diorite

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 5, T.19N., R.6E., and SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 32, T.20N., R.6E., MDBM, Butte Co. (26)

Description: several pits

Geology: quartz vein strikes E-W in quartz diorite

Name: Secret Canyon

Location: *E $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 1, T.19N., R.10E., MDBM, Sierra Co. (1)

Description: incline, adit, and two pits

Geology: 10–15' wide quartz vein strikes NE and dips SW in slate

Name: Jumper and Tippecanoe

Location: *W $\frac{1}{2}$ NW $\frac{1}{4}$ and SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 1, T.19N., R.10E., MDBM, Sierra Co. (22)

Description: several adits, pits, and trenches

Geology: 3' wide quartz vein strikes N-S and dips E in slate

Name: Old Mexican

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, and SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4, T.19N., R.10E., MDBM, Sierra Co. (16)

Description: two adits and several trenches

Geology: gold in quartz vein in amphibolite schist of Tightner fm.

Name: Alpha

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 9, and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 16, T.19N., R.10E., MDBM, Sierra Co. (1)

Description: adit to vein, two adits on vein, several trenches, and pits

Geology: three parallel quartz veins strike about N10°W in metamorphic rocks

Location: *E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 12, T.19N., R.10E., MDBM, Sierra Co. (1)

Description: several trenches

Geology: quartz veins in slate and quartzite

Name: Brush Creek

Location: *W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 17, E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 18, and E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 19, T.19N., R.10E., MDBM, Sierra Co. (4)

Description: \$1,000,000 in gold reported mined prior to 1875 and an additional \$3,000,000 1922–23, 1927, 1944–54; mine operating 1963; adit to vein, adit on vein, and incline provide access to extensive workings; mill heads of about 0.86 oz. Au reported for 1954

Geology: 3–15' wide quartz vein strikes N and dips about 40°W; lodes contain gold and sulfides in shoots that are near vertical; slate host rock replaced by mariposite and carbonate minerals, locally to widths of 50'

Name: Mammoth Springs

Location: *N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 26, T.19N., R.10E., MDBM, Sierra Co. (3,9)

Description: two adits

Geology: visible gold in sheared slate, gabbro, and serpentinite along a major fault that strikes N5°W and dips vertically

Name: Continental

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 26, T.19N., R.10E., MDBM, Sierra Co. (3,9)

Description: several adits; active in 1899

Geology: quartz vein strikes N40°E in amphibolite schist of Tightner fm.

Name: Kinselbach (*Acme*)

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 26, E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 35, and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 36, T.19N., R.10E., MDBM, Sierra Co. (3,9)

Description: \$8000 in gold reported mined from several pits prior to 1932; two adits

Geology: auriferous sulfides in amphibolite schist of Tightner fm. adjacent to Melones fault which strikes N10-25°W and dips 74°E; mariposite-carbonate gangue common and quartz gash-fracture fillings in both footwall and hanging wall along fault

Name: Red Star (*Osceola*)

Location: *SW $\frac{1}{4}$ Sec. 27, and NE $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co. (4,9)

Description: \$182,000 in gold reported mined from two shoots, the Red Star and the Osceola, via adits to veins; extensive workings

Geology: gold and auriferous sulfides in three veins, two of which, Red Star and Osceola, strike NW and dip steeply NE; a third vein discovered in 1942, is 5-15' wide, strikes NW, and dips 30-45°E; all veins in amphibolite schist of Tightner fm.

Name: Diadem

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 28, T.19N., R.10E., MDBM, Sierra Co. (3,9)

Description: \$20,000 in gold reported mined prior to 1932; extent of workings unknown

Geology: quartz vein strikes N and dips steeply W in schist and serpentinite

Name: Tomboy and Eureka

Location: *SE $\frac{1}{4}$ Sec. 29, T.19N., R.10E., MDBM, Sierra Co. (4,9)

Description: operated via two adits and a shaft at Tomboy, and several adits and shafts at Eureka

Geology: auriferous sulfides in Tomboy vein which strikes NE and dips 60-75°SE; abundant sulfides in Eureka vein which strikes NW and dips gently NE; both veins exhibit post-mineral shearing and have gabbroic wall rocks

Name: James

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 31, T.19N., R.10E., MDBM, Sierra Co. (1)

Description: 250-300' adit on vein

Geology: sulfides in 2-24" wide quartz vein that strikes N60-70°W and dips vertically in slate

Name: Kate Hardy

Location: *NW $\frac{1}{4}$ Sec. 32, T.19N., R.10E., MDBM, Sierra Co.

(1,9)

Description: \$500,000-600,000 in gold reportedly mined from several adits on vein

Geology: gold and auriferous sulfides in quartz vein several inches to several feet wide; vein swells locally to about 50', strikes N20-30°W, dips 75-80°W, and is on a reverse fault in slate that has been intruded by serpentinitized mafic and ultramafic dikes and locally altered to mariposite and carbonate minerals

Name: Seven Aces (*Wyoming, Hub*)

Location: *E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 33, and SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co.

(4,9)

Description: adit to vein; active during early 1950's

Geology: quartz vein strikes N5°W and dips 35-65°W in serpentinite

Name: Morning Glory

Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ and NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co.

(4,9)

Description: \$80,000-100,000 reported mined prior to 1932 via shafts and adits from extensive workings

Geology: gold and auriferous sulfides in 1-3' wide quartz vein that strikes N20-60°W and dips 30-60°NE in amphibolite schist of Tightner fm.

Name: Minnie D and Lucky Larry

Location: *N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co.

(3,9)

Description: three adits

Geology: Minnie D vein strikes N55°W and dips 50°N, and Lucky Larry strikes N10°W to N35°E and dips 55-60°W; both veins carry sulfides and are in amphibolite schist of Tightner fm.

Name: Rao

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co.

(3,9)

Description: adit

Geology: quartz vein strikes NE and dips 60°SW in amphibolite schist of Tightner fm.

Name: Yellow Jacket (*Colorado*)

Location: *SE $\frac{1}{4}$ Sec. 34, and SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T.19N., R.10E., MDBM, Sierra Co.

(4,9)

Description: \$28,000 reported mined prior to 1925 from extensive workings via a 300' adit on vein

Geology: two veins, the Yellow Jacket and Colorado, contain gold in sheared quartz; Yellow Jacket strikes NW to E-W and dips flatly in regions of NW-strike, steepening considerably as strike bends toward due W; Colorado strikes N20°W and dips 45°E; Yellow Jacket vein on thrust fault and Colorado vein on normal fault in amphibolite and amphibolite schist of Tightner fm.; both veins locally intruded by gabbro and serpentinite dikes

Name: Docile

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 35, T.19N., R.10E., MDBM, Sierra Co.

(3,9)

Description: about \$100,000 reported mined via an adit on vein and an adit to vein prior to 1894

Geology: quartz vein that strikes WNW and dips 60°N at surface, and strikes N29°W and dips 40°N in upper adit; wallrocks are amphibolite schist of Tightner fm. and serpentinite

Name: Dreadnaught

Location: *W $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T.19N., R.10E., MDBM, Sierra Co. (3,9)

Description: \$50,000-100,000 reported mined via several adits 1870-93

Geology: two irregular quartz veins in shear zones that strike N-S and dip 60°W in amphibolite schist of Tightner fm.

Name: Golden King

Location: *E $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T.19N., R.10E., MDBM, Sierra Co. (3,9)

Description: about \$100,000 reported mined via a 150' shaft from extensive workings prior to 1895

Geology: quartz vein strikes due N and dips about 80°W in amphibolite schist of Tightner fm. and serpentinite

Name: Rising Sun

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 35, T.19N., R.10E., MDBM, Sierra Co. (3,9)

Description: \$58,000 reported mined prior to 1932 via two adits on Rising Sun vein and an adit and several cuts on Cedar vein

Geology: Rising Sun vein is very irregular, strikes about N8°E, and dips 75°W; Cedar vein strikes NNE and dips W; both veins in amphibolite schist, quartz-chlorite schist, and hornblende-mica schist of Tightner fm.; intruded by serpentinite and gabbro dikes

Name: Belmont

Location: *S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 35, T.19N., R.10E., MDBM, Sierra Co. (3,9)

Description: reportedly mined from three adits prior to 1932

Geology: gold in quartz vein that strikes N73°W and dips 50-70°S in amphibolite schist of Tightner fm.

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 2, T.19N., R.11E., MDBM, Sierra Co. (1)

Description: adit, shaft, and several pits

Geology: quartz vein strikes NNW in schist roof pendant in porphyritic granite

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 2, T.19N., R.11E., MDBM, Sierra Co. (1)

Description: several cuts and a circular shaft

Geology: quartz vein strikes NNW in porphyritic granite

Name: Elcey (*Buckingham*)

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ and SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 4, T.19N., R.11E., MDBM, Sierra Co. (1)

Description: two adits

Geology: gold and sulfides in 4' wide Elcey vein; Golden Slipper vein to 10' wide; both veins in slate near contact with porphyritic granite

- Location:* *E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 7, T.19N., R.11E., MDBM, Sierra Co. (1)
- Description:* shaft in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ and two trenches in SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$; active prior to 1925
- Geology:* four quartz veins strike NNW in slate and quartzite
- Name:* Eaglebird
- Location:* *W $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ and NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 9, T.19N., R.11E., MDBM, Sierra Co. (1,16,22)
- Description:* two adits; 0.29–2.1 oz. Au reported; prospecting activity in 1959
- Geology:* gold and auriferous sulfides in quartz veins and stringers in porphyritic granite near contact with slate
- Location:* N $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 11, T.19N., R.11E., MDBM, Sierra Co. (1)
- Description:* 270' caved adit on vein with raise to surface at face; gold panned from dump
- Geology:* 2–5' wide quartz vein strikes NE and can be traced about 750' on strike; porphyritic granite wallrock
- Conclusions:* warrants additional exploration
- Name:* Comet (*Republic Group, Alhambra Group*)
- Location:* *W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 17, T.19N., R.11E., MDBM, Sierra Co. (1,2)
- Description:* four adits
- Geology:* quartz veins strike NNW in slate
- Name:* Ironsides
- Location:* *NE $\frac{1}{4}$ Sec. 20, T.19N., R.11E., MDBM, Sierra Co. (22)
- Description:* \$22,000 in gold reportedly sluiced from residual deposit; adit
- Geology:* quartz vein strikes NW in slate and quartzite
- Name:* Nixon
- Location:* *W $\frac{1}{2}$ SE $\frac{1}{4}$ and SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 27, T.19N., R.11E., MDBM, Sierra Co. (1)
- Description:* two adits and several pits
- Geology:* 1–6' wide quartz veins strike N in porphyritic granite
- Name:* Pilgrim
- Location:* *W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 29, T.19N., R.11E., MDBM, Sierra Co. (1,4)
- Description:* 600 tons mined from two adits in 1946 reportedly yielded 145 oz. Au and 22 oz. Ag
- Geology:* lode, 18 inches to 18 feet wide, in Pilgrim vein that strikes N18°E and is traceable for about 2000' on surface in slate
- Name:* Von Humboldt
- Location:* *E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 33, T.19N., R.11E., MDBM, Sierra Co. (1)
- Description:* several adits and pits
- Geology:* 8–18" wide quartz veins and stringers strike NE and dip 70°W in porphyritic granite

Name: Yellow Jacket and Bear Creek

Location: *E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 33, T.19N., R.11E., MDBM, Sierra Co. (1)

Description: adit at Yellow Jacket, and pit at Bear Creek

Geology: quartz vein strikes NNE in porphyritic granite

Location: N $\frac{1}{2}$ SW $\frac{1}{4}$ and S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 5, T.19N., R.12E., MDBM, Sierra Co. (1)

Description: three adits in N $\frac{1}{2}$ SW $\frac{1}{4}$

Geology: quartz veins strike NNW in chert near contact with rhyolite porphyry dike

Conclusions: shows little promise

Name: St. Louis (*San Luis*)

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 5, and SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 6, T.19N., R.12E., MDBM, Sierra Co. (22)

Description: eight adits in Sec. 5, and numerous pits

Geology: quartz vein strikes NNW in chert

Name: Ruby

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.20N., R.5E., MDBM, Butte Co. (1)

Description: two shallow pits

Geology: 8' wide quartz vein strikes NW in mica schist and hornfels

Location: *NW $\frac{1}{4}$ Sec. 15, T.20N., R.5E., MDBM, Butte Co. (1)

Description: two inclines in NE $\frac{1}{4}$ NW $\frac{1}{4}$, several pits in NW $\frac{1}{4}$ NW $\frac{1}{4}$ and a 110' adit to vein in W $\frac{1}{2}$ NW $\frac{1}{4}$

Geology: sulfides in quartz veins and stringers in mica schist and hornfels

Location: S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 23, T.20N., R.5E., MDBM, Butte Co. (1)

Description: adit and several pits; selected sample from dump assayed 0.38 oz. Au

Geology: 4–8" quartz vein in 2' wide shear zone that strikes E-W for about 125' and dips 70°N in granodiorite

Conclusions: shows limited promise

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 23, and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 26, T.20N., R.5E., MDBM, Butte Co. (26)

Description: shaft and adit

Geology: 1' wide quartz vein strikes NE for about 50' in granodiorite

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11, T.20N., R.6E., MDBM, Butte Co. (1)

Description: two trenches and a pit

Geology: quartz vein strikes N-S in granodiorite

Location: *S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 23, T.20N., R.6E., MDBM, Butte Co. (1)

Description: numerous pits

Geology: quartz vein strikes NNE in granodiorite

Name: St. Francis

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 28, and NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 33, T.20N., R.6E., MDBM, Butte Co. (15)

Description: a shaft, adit, and several pits; sulfides reportedly assayed 0.15–0.20 oz. Au

Geology: two quartz veins strike ENE in granodiorite

Name: Southern Cross (*Edel*)

Location: *SE $\frac{1}{4}$ Sec. 32, T.20N., R.6E., MDBM, Butte Co. (15,26)

Description: three adits on vein, one of which is 1800' long; 0.4 oz. Au reported

Geology: quartz vein, to 6' wide, strikes NE and dips 60°NW in quartz diorite

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 33, T.20N., R.6E., MDBM, Butte Co. (1)

Description: adit and pit

Geology: quartz vein strikes ENE in quartz diorite

Name: Garibaldi

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 33, T.20N., R.6E., MDBM, Butte Co. (1)

Description: several pits

Geology: quartz stringers and veins to 3' wide strike ENE in granodiorite

Name: Carlisle (*Carlisle*)

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T.20N., R.6E., MDBM, Butte Co. (15)

Description: adit

Geology: sulfides in 6–8' wide quartz vein that strikes NE and dips 60°NW in amphibolitic hornfels and mica schist

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 7, T.20N., R.7E., MDBM, Butte Co. (1)

Description: numerous pits

Geology: quartz vein strikes NE in granodiorite

Name: Golden West

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 19, T.20N., R.7E., MDBM, Butte Co. (1)

Description: adit

Geology: contact between amphibolitic hornfels and schist with quartzite

Name: Black Eagle

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 28, T.20N., R.7E., MDBM, Butte Co. (1)

Description: 50' shaft

Geology: slate and chert

Location: S $\frac{1}{2}$ NE $\frac{1}{4}$ and N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 31, T.20N., R.7E., MDBM, Butte Co. (1)

Description: pit

Geology: several quartz stringers strike NW in serpentinized mafic and ultramafic rocks

Conclusions: shows little promise

Name: Primrose

Location: *E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 11, SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 12, and W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 13, T.20N., R.11E., (2,16)
MDBM, Sierra Co.

Description: gold mined in 1888 via a 180' shaft, and two adits; a 105' shaft sunk during 1920's

Geology: two veins, the Primrose and the DeLong; Primrose, to 15' wide, strikes NNE and dips 80°W, and has a quartzite and serpentinite footwall and a slate hanging wall; DeLong strikes N26°W and dips E

Name: Empire

Location: *E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 13, and NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 24, T.20N., R.11E., (1)
MDBM, Sierra Co.

Description: several cuts

Geology: quartz veins in slate

Location: *W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 15, T.20N., R.11E., MDBM, Sierra Co. (1)

Description: several adits and pits

Geology: 4–5' wide quartz vein strikes N-S and dips 75°W in slate

Location: *E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 21, T.20N., R.11E., MDBM, Sierra Co. (1)

Description: pit

Geology: 6–7' wide vertical quartz vein strikes N40°E in quartzite and slate, and in porphyritic granite

Name: Sovereign

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 24, T.20N., R.11E., MDBM, Sierra Co. (22)

Description: adit to Nevada vein, shaft on Elanore vein, and 175' adit on Yuba vein; 0.073 oz. Au reported from Nevada vein

Geology: gold and auriferous sulfides in three veins; 3' wide Nevada vein strikes N-S and dips 60°W, 12' wide Yuba vein strikes N20°W, and 3' wide Elanore vein strikes N10°E and dips 60°W; all veins in slate

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 24, T.20N., R.11E., MDBM, Sierra Co. (1)

Description: incline

Geology: quartz vein in quartzitic schist

Name: Mooers and Sharschu

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 25, T.20N., R.11E., MDBM, Sierra Co. (1)

Description: about 25 tons mined from a shaft, an incline, and several adits in 1916

Geology: quartz vein strikes about N5°W in slate and quartzite

Location: E $\frac{1}{2}$ E $\frac{1}{2}$ NE $\frac{1}{4}$ and E $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 25, T.20N., R.11E., MDBM, Sierra Co. (1)

Description: pit

Geology: quartz stringers in slate and quartzite

Conclusions: shows little promise

Location: NW $\frac{1}{4}$ Sec. 25, T.20N., R.11E., MDBM, Sierra Co. (1)

Description: several pits and short adits

Geology: quartz stringers and veins strike N-S in slate and quartzite

Conclusions: shows little promise

Name: Gold Point (Grey Eagle)

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 28, T.20N., R.11E., MDBM, Sierra Co. (1,10)

Description: about 14,000 tons reported mined from 600' adit on vein leading to extensive underground workings; intermittently active 1909-10, 1938-48; 1000' of diamond drilling in 1948; concentrates constituting about 2.7% of bulk ore reported to contain 7.12% Pb, 1.34% Zn, and 0.54% Cu plus gold and silver (1948); Au:Ag of 4:3

Geology: quartz vein strikes NNE in porphyritic granite

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 31, T.20N., R.11E., MDBM, Sierra Co. (1)

Description: two adits on vein and several pits

Geology: quartz stringers a few inches wide strike NNW in schist

Name: Cleveland

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 35, T.20N., R.11E., MDBM, Sierra Co. (22)

Description: 350' shaft and adit

Geology: quartz veins in slate

Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 35, T.20N., R.11E., MDBM, Sierra Co. (1)

Description: three adits and several pits

Geology: NE-trending quartz veins in slate

Name: Young America

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 9, T.20N., R.12E., MDBM, Sierra Co. (2)

Description: 0.97-1.5 oz. Au reported from an adit worked prior to 1897

Geology: gold and sulfides in 6-12' wide quartz vein in metavolcanic rocks

✓ *Location:* *N $\frac{1}{2}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$, and W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 13, T.20N., R.12E., MDBM, Sierra Co. (1)

Description: several adits

Geology: two quartz veins strike NE in granodiorite

Name: Mountain (Bonanza)

Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 16, T.20N., R.12E., MDBM, Sierra Co. (2)

Description: two adits; active 1905

Geology: 10-20' wide quartz vein strikes NNW and dips 60°E in slate and greenstone

Name: Monarch

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 18, and N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 19, T.20N., R.12E., MDBM, Sierra Co. (16,22)

Description: mined from two shafts

Geology: 6' wide lode composed of quartz stringers strikes N38°W and dips 60–65°E in slate, amphibolite, and serpentinite

Name: Columbo

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 19, and N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 30, T.20N., R.12E., MDBM, Sierra Co. (2)

Description: 1147 oz. gold and 40 oz. silver recovered from 1200 tons of concentrate in 1939; 1900' adit on vein leads to extensive workings

Geology: auriferous sulfides in 3–6' wide quartz vein that strikes NW and dips 70°NE at contact between fine-grained diorite and hornfels

Name: Sacred Mount and Butte Saddle Group

Location: *NE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 20, and SW $\frac{1}{4}$ Sec. 21, T.20N., R.12E., MDBM, Sierra Co. (2,6)

Description: about \$60,000 reported produced from several adits leading to extensive workings

Geology: auriferous sulfides in 6–7' wide quartz vein that strikes N80°W for about 1200' and dips 45–50°N in diorite at Butte Saddle; 4–5' wide lode, composed of quartz stringers, strikes N55°W and dips 65°N along slate-diorite contact at Sacred Mount

Name: Phoenix

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 22, T.20N., R.12E., MDBM, Sierra Co. (2,22)

Description: \$187,000 reported mined prior to 1891 from a 700' adit leading to vein and extensive workings; 0.27 oz. Au reported from stopes above adit level

Geology: gold and auriferous sulfides in 3.5' wide quartz vein that strikes E-W and dips 63–74°N

Location: *E $\frac{1}{2}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 23, T.20N., R.12E., MDBM, Sierra Co. (1)

Description: two adits

Geology: NNE-trending quartz veins in metamorphic rocks

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 25, T.20N., R.12E., MDBM, Sierra Co. (1)

Description: adit

Geology: 3' wide quartz vein strikes NNE in metamorphic rocks

Name: Chipps (*Swastika*)

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26, and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 27, T.20N., R.12E., MDBM, Sierra Co. (2)

Description: two adits

Geology: quartz vein in slate

Name: Kentucky

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 27, and E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 28, T.20N., R.12E., MDBM, Sierra Co. (2)

Description: two adits, one on vein for 300'

Geology: quartz vein strikes NW and dips 45°NE in metamorphosed andesite

Name: Bigelow

Location: *SW $\frac{1}{4}$ Sec. 28, T.20N., R.12E., MDBM, Sierra Co. (2)

Description: \$30,000 reported mined via several adits

Geology: 5' wide quartz vein strikes N55°W and dips 40°N in amphibolite

Name: Sierra Buttes

Location: *Lots 37, 45, 46, 48, and 66 in Sec. 29, T.20N., R.12E., MDBM, Sierra Co. (2,16,22)

Description: over \$17,000,000 in gold reportedly produced 1870–1941 via nine adits and a shaft leading to extensive workings; 0.44 oz. Au reported from 9th level

Geology: quartz veins in rhyolite porphyry, greenstone, and serpentinite; 6–20' wide Ariel (Independence) vein strikes N51°W–N80°E and dips 45–54°N; Mammoth vein is 15–20' wide

Location: *W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 29, T.20N., R.12E., MDBM, Sierra Co. (1)

Description: several pits

Geology: quartz vein in slate

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 29, T.20N., R.12E., MDBM, Sierra Co. (1)

Description: 60' adit

Geology: 4' wide quartz vein in slate

Name: Keystone (*Big Avalanche Group*)

Location: *E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 31, T.20N., R.12E., MDBM, Sierra Co. (16)

Description: several adits

Geology: 1–5' wide quartz vein in slate

Name: Northern Belle (*Lucky Boy*)

Location: *E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 31, T.20N., R.12E., MDBM, Sierra Co. (1)

Description: two adits

Geology: quartz vein strikes NE in slate

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 33, T.20N., R.12E., MDBM, Sierra Co. (1)

Description: pit

Geology: quartz vein strikes NNW in amphibolite

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.20N., R.12E., MDBM, Sierra Co. (1)

Description: pits

Geology: quartz vein strikes NNE in slate

Conclusions: shows little promise

Name: Surcease Group (*includes Surcease, Bunker Hill and Treasure Hill*)

Location: *Secs. 4, 5, 6, and 7, T.21N., R.5E., MDBM, Butte Co. (1,10,11)

Description: incline leading to extensive workings on Surcease vein; incline and adit on Bunker Hill vein; \$200,000 in 0.2 oz. Au reportedly mined prior to 1930; gold and by-product silver, lead, copper, and zinc mined 1930–42

Geology: auriferous sulfides in 1–20' wide quartz veins in amphibolite schist near trondjemite porphyry intrusive; Surcease vein strikes N10–30°W and dips 20–40°E; 4'

wide Bunker Hill vein strikes N10–30°W and dips 55–70°E; lodes associated with a fault zone that strikes N70°E and dips 65–70°N

Name: Big Bend

Location: *SE $\frac{1}{4}$ Sec. 8, T.21N., R.5E., MDBM, Butte Co.
(See under METALLICS, Zinc)

Location: N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 35, T.22N., R.6E., MDBM, Butte Co. (1)

Description: several pits

Geology: quartz vein strikes WNW in metamorphic rocks

Conclusions: shows little promise

Name: Silver Star

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 36, T.23N., R.5E., MDBM, Butte Co. (1)

Description: adit; activity in 1959

Geology: quartz vein in metavolcanic rocks near granodiorite pluton

Location: *W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 22, T.23N., R.6E., MDBM, Butte Co. (1)

Description: pits

Geology: gently dipping quartz vein strikes NNE in granitic rocks

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ and NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26, T.23N., R.6E., MDBM, Butte Co. (1)

Description: pits

Geology: vertical quartz vein strikes NNE in granitic rocks

Location: W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 23, T.24N., R.3E., MDBM, Butte Co. (1)

Description: 40' incline on vein, adit to vein, and drifts driven 1914–17; numerous pits and trenches; vein samples assayed 0.07–0.21 oz. Au

Geology: quartz vein to 4' wide strikes N30°W for 75' and dips 50°E in slate; a second vein 4' wide strikes N85°E and dips 75°N in slate

Conclusions: shows limited promise

Name: Wyoming (*Black Diamond*)

Location: *S $\frac{1}{2}$ NE $\frac{1}{4}$ and N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 34, T.24N., R.3E., MDBM, Butte Co. (1)

Description: two adits to veins

Geology: quartz stringers in slate and schist

Name: McHugh

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 36, T.24N., R.3E., MDBM, Butte Co. (1)

Description: pit

Geology: quartz vein in slate and schist

Name: El Monte (*Toadtown*)

Location: *SW $\frac{1}{4}$ Sec. 36, T.24N., R.3E., MDBM, Butte Co. (1)

Description: several hundred dollars in gold mined from 150' incline

Geology: quartz veins and stringers in diorite

OCCURRENCES

- Location:* NE $\frac{1}{4}$ Sec. 21, T.13N., R.10E., MDBM, Placer Co. (1)
Geology: quartz vein in hydrothermally altered slate
Conclusions: shows little promise
- Location:* *Sec. 31, T.14N., R.15E., MDBM, El Dorado Co. (12)
Geology: quartz vein, reported to contain 0.25 oz. Au, in metavolcanic rocks
- Location:* NW $\frac{1}{4}$ Sec. 3, T.17N., R.13E., MDBM, Nevada Co. (1)
Geology: 6' wide sulfide-bearing quartz-tourmaline vein strikes N80°W and dips 75°S in quartz diorite; selected sample assayed 0.1 oz. Au and 0.1 oz. Ag
Conclusions: shows little promise
- Location:* *E $\frac{1}{2}$ Sec. 3, T.17N., R.13E., MDBM, Nevada Co. (1)
Geology: sulfides in 2' wide quartz vein that strikes N70°W and dips 70°S in quartz diorite
- Location:* SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 17, T.17N., R.13E., MDBM, Nevada Co. (1)
Geology: massive and disseminated sulfides in 6' wide lenses in 75–100' wide epidotized skarn zone in metamorphic rocks
Conclusions: shows limited promise
- Location:* *Sec. 28, T.18N., R.11E., MDBM, Nevada Co. (19,21)
Geology: quartz vein strikes N-S and dips 70–80°E in slate
- Location:* *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 24, and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 25, T.19N., R.10E., MDBM, Sierra Co. (1)
Geology: quartz vein strikes about N10°W and dips about 45°E in slate
- Location:* NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 7, T.19N., R.12E., MDBM, Sierra Co. (1)
Geology: 4.5' wide quartz vein strikes NNW in chert and slate; selected sample assayed 0.01 oz. Au and 0.5 oz. Ag
Conclusions: shows little promise
- Location:* NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 15, T.20N., R.5E., MDBM, Butte Co. (1)
Geology: NW-striking quartz vein in mica schist and hornfels
Conclusions: shows little promise
- Location:* *NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 2, T.20N., R.6E., MDBM, Butte Co. (1)
Geology: 2–3' wide vertical quartz vein strikes NE in granodiorite
- Location:* E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 11, T.20N., R.6E., MDBM, Butte Co. (1)
Geology: 3–4' wide quartz vein strikes NNW in granodiorite
Conclusions: shows little promise
- Location:* SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 25, T.20N., R.12E., MDBM, Sierra Co. (1)

Geology: 8" quartz veins strike N-S in metamorphic rocks; selected samples of veins assayed a trace to 0.02 oz. Au and 0.30-0.50 oz. Ag

Conclusions: shows little promise

TRENDS

Location: $N\frac{1}{2}NW\frac{1}{4}SW\frac{1}{4}$ and $W\frac{1}{2}NW\frac{1}{4}$ Sec. 3, T.15N., R.11E., MDBM, Placer Co. (1)

Geology: numerous quartz veins in slate and schist; these veins are on trend of strikes of veins at Pioneer, Blackhawk, Dorer, and Central

Location: $NE\frac{1}{4}NE\frac{1}{4}$ Sec. 23 except Lot 45, T.17N., R.11E., MDBM, Nevada Co. (1)

Geology: Last Chance vein traced about 400' on strike into section from Sec. 14

Conclusions: warrants additional exploration

Location: $NE\frac{1}{4}NW\frac{1}{4}$ Sec. 17, T.18N., R.11E., MDBM, Nevada Co. (1)

Geology: several veins associated with Republic vein trend into this parcel

Location: $SE\frac{1}{4}SW\frac{1}{4}$ Sec. 5, T.18N., R.12E., MDBM, Nevada Co. (1)

Geology: quartz vein described in $SW\frac{1}{4}NE\frac{1}{4}$ of section may extend into this parcel

GOLD (placer) [Au]

Placer gold has been mined sporadically for more than a century from Tertiary and Recent stream gravel deposits. Most of the auriferous gravel deposits have been placered. The Tertiary deposits listed are Southern Pacific lands that contain reserves of auriferous gravel.

The other listed locations are on major rivers, may be auriferous, are amenable to placer mining, and are owned by Southern Pacific. The Company also owns Recent gravel deposits (not plotted on Mineral Commodity Map) on tributary streams and creeks.

TERTIARY DEPOSITS:

$W\frac{1}{2}SE\frac{1}{4}$ and $E\frac{1}{2}SW\frac{1}{4}$ Sec. 13, T.15N., R.12E., MDBM, Placer Co.

$S\frac{1}{2}S\frac{1}{2}NE\frac{1}{4}NE\frac{1}{4}$, $SE\frac{1}{4}NW\frac{1}{4}NE\frac{1}{4}$, $E\frac{1}{2}SW\frac{1}{4}NE\frac{1}{4}$, $NW\frac{1}{4}SE\frac{1}{4}$, and $E\frac{1}{2}SE\frac{1}{4}SW\frac{1}{4}$ Sec. 17, T.17N., R.11E., MDBM, Nevada Co.

$N\frac{1}{2}N\frac{1}{2}$ Sec. 5, T.18N., R.11E., MDBM, Sierra Co.

MIDDLE FORK AMERICAN RIVER:

$S\frac{1}{2}SW\frac{1}{4}$ Sec. 21, T.13N., R.10E., MDBM, El Dorado and Placer Counties

NORTH FORK AMERICAN RIVER:

$S\frac{1}{2}SW\frac{1}{4}NW\frac{1}{4}$ Sec. 11, T.13N., R.9E., MDBM, Placer Co.

$N\frac{1}{2}NE\frac{1}{4}$, $SW\frac{1}{4}NE\frac{1}{4}$, $NW\frac{1}{4}NW\frac{1}{4}SE\frac{1}{4}$, and $N\frac{1}{2}SW\frac{1}{4}$ Sec. 11, T.15N., R.10E., MDBM, Placer Co.

Lot 8 in $NE\frac{1}{4}NE\frac{1}{4}$ Sec. 5, T.15N., R.11E., MDBM, Placer Co.

$S\frac{1}{2}S\frac{1}{2}SE\frac{1}{4}$ Sec. 25, T.16N., R.12E., MDBM, Placer Co.

$S\frac{1}{2}N\frac{1}{2}SW\frac{1}{4}$ and $N\frac{1}{2}S\frac{1}{2}SW\frac{1}{4}$ Sec. 31, T.16N., R.12E., MDBM, Placer Co.

$S\frac{1}{2}SE\frac{1}{4}SE\frac{1}{4}$ Sec. 33, T.16N., R.12E., MDBM, Placer Co.

$N\frac{1}{2}NW\frac{1}{4}SW\frac{1}{4}$, $S\frac{1}{2}N\frac{1}{2}NE\frac{1}{4}$, $S\frac{1}{2}NE\frac{1}{4}NW\frac{1}{4}$, $SE\frac{1}{4}NW\frac{1}{4}$, and $S\frac{1}{2}SW\frac{1}{4}NW\frac{1}{4}$ Sec. 35, T.16N., R.12E., MDBM, Placer Co.

N $\frac{1}{2}$ SE $\frac{1}{4}$, S $\frac{1}{2}$ N $\frac{1}{2}$ SW $\frac{1}{4}$, and SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 25, T.16N., R.13E., MDBM, Placer Co.
S $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, S $\frac{1}{2}$ S $\frac{1}{2}$ NW $\frac{1}{4}$, and N $\frac{1}{2}$ N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 29, T.16N., R.13E.,
MDBM, Placer Co.

SOUTH YUBA RIVER:

S $\frac{1}{2}$ N $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 23, T.17N., R.8E., MDBM, Nevada Co.
SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 9, T.17N., R.10E., MDBM, Nevada Co.
SE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, and N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 11, T.17N., R.10E., MDBM, Nevada Co.
N $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$, N $\frac{1}{2}$ N $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, and SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 17, T.17N., R.10E.,
MDBM, Nevada Co.
N $\frac{1}{2}$ N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 13, T.17N., R.11E., MDBM, Nevada Co.

MIDDLE YUBA RIVER:

W $\frac{1}{2}$ SE $\frac{1}{4}$ and S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 13, T.18N., R.9E., MDBM, Nevada and Sierra Counties
S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 15, T.18N., R.9E., MDBM, Nevada and Sierra Counties
N $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$, and N $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 17, T.18N., R.10E., MDBM, Nevada
and Sierra Counties
NW $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$, and SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 7, T.18N., R.11E., MDBM, Nevada and
Sierra Counties
SE $\frac{1}{4}$ Sec. 13, T.19N., R.11E., MDBM, Nevada and Sierra Counties
SE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 23, T.19N., R.11E., MDBM, Nevada and Sierra Counties
SE $\frac{1}{4}$ Sec. 33, T.19N., R.11E., MDBM, Nevada and Sierra Counties
SE $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$ and S $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 9, T.19N., R.12E., MDBM, Nevada and Si-
erra Counties

MIDDLE FORK FEATHER RIVER:

W $\frac{1}{2}$ W $\frac{1}{2}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, and S $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11, T.21N.,
R.6E., MDBM, Butte Co.
NE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$, and W $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15,
T.21N., R.6E., MDBM, Butte Co.
E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 21, T.21N., R.6E., MDBM, Butte Co.
W $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, and W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 27,
T.21N., R.6E., MDBM, Butte Co.
SE $\frac{1}{4}$ Sec. 35, T.22N., R.6E., MDBM, Butte Co.

IRON [Fe]

MINES AND PROSPECTS

Name: Morrison

Location: *Sec. 30, T.25N., R.5E., MDBM, Butte Co.

(1)

Description: over 750 tons of 63-67% Fe reportedly mined from 20' deep pit in late 1950's

Geology: magnetite and some pyrite in marble

Name: Paine Brothers

Location: *N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 15, T.17N., R.9E., MDBM, Nevada Co.

(See under METALLICS, Manganese)

LEAD [Pb]

Name: Giant King

Location: *E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 13, T.17N., R.10E., MDBM, Nevada Co.
(See under METALLICS, Gold)

Name: Alaska (*Sierra Alaska*)

Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 5, and NW $\frac{1}{4}$ Sec. 8, T.18N., R.9E., MDBM, Sierra Co.
(See under METALLICS, Gold)

Name: Sixteen-to-One (*includes Eclipse, Ophir, Tightner, and Twenty-One*)

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.18N., R.10E., and SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co.
(See under METALLICS, Gold)

Name: Del Norte and Scotia

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., and SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.19N., R.10E., MDBM, Sierra Co.
(See under METALLICS, Gold)

Name: Spanish (*includes Upper Spanish*)

Location: *W $\frac{1}{2}$ Sec. 19, and Secs. 30 and 31, T.18N., R.11E., MDBM, Nevada Co.
(See under METALLICS, Gold)

Name: Ancho-Erie (*Canton, Dandarine, Dublin Bay Consolidated, Edison, Holland*)

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 20, and NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 21, T.18N., R.11E., MDBM, Nevada Co.
(See under METALLICS, Gold)

Name: Gold Point (*Grey Eagle*)

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 28, T.20N., R.11E., MDBM, Sierra Co.
(See under METALLICS, Gold)

Name: Surcease Group (*includes Surcease, Bunker Hill, and Treasure Hill*)

Location: *Secs. 4, 5, 6, and 7, T.21N., R.5E., MDBM, Butte Co.
(See under METALLICS, Gold)

Name: Big Bend

Location: *SE $\frac{1}{4}$ Sec. 8, T.21N., R.5E., MDBM, Butte Co.
(See under METALLICS, Zinc)

MANGANESE [Mn]

MINES AND PROSPECTS

Name: Gold Hill (*Crown Point, Tilsley, and Coplen Group*)

Location: *Sec. 20, T.14N., R.10E., MDBM, Placer Co.

(1,25)

Description: about 100 tons reported mined during World War I averaging 45% MnO and 15% SiO₂; two deposits, uppermost developed by a trench and a drift and prospected by several shallow pits, lowermost by two shafts, and an adit intersecting one of the shafts

Geology: tabular manganese-oxide deposits in quartzite cut by quartz veins and enclosed in sericite schist and phyllite; 15' thick upper deposit contains "high-grade" MnO pockets; lower deposit is 5' thick in adit, 9' thick in one shaft, and 4' thick in other shaft; "high grade" reportedly contains 35% MnO and is composed of hard blue-black psilomelane, soft black pyrolusite, and pink rhodonite; deposits terminated by faults

Name: Randel Claim No. 1 (*American Claim of Tilsley and Coplen Group*)

Location: *SW $\frac{1}{4}$ Sec. 20, T.14N., R.10E., MDBM, Placer Co. (1,25)

Description: 40% MnO reported on dump; two sets of workings; uppermost exposes deposit for 90' and lowermost for 265'; about 20% MnO reported

Geology: mixture of psilomelane and pyrolusite with minor rhodonite; MnO zone terminated by faults in fine-grained quartzite cut by quartz veins

Location: *NE $\frac{1}{4}$ Sec. 29, T.14N., R.10E., MDBM, Placer Co. (1,25)

Description: a shaft, two pits and a trench; selected dump samples reportedly assayed 35-40% MnO with "high-grade" samples to 50% MnO

Geology: pockets of pyrolusite, psilomelane, and rhodonite in fault zone containing numerous quartz stringers; host rock includes chert, quartzite, slate, and phyllite

Name: Paine Brothers

Location: *N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 15, T.17N., R.9E., MDBM, Nevada Co. (1,25)

Description: MnO produced during World War I from several shafts, adits, and trenches; several trenches and pits excavated after World War II

Geology: hematite, limonite, psilomelane, and wad in 2-6' wide gouge zone containing silica stringers and clay; gouge reported to contain less than 10% MnO; faults control mineralization; siliceous argillite and diabase dikes are host rocks

Name: Bear Canyon

Location: *Sec. 34, T.20N., R.7E., MDBM, Butte Co. (25)

Description: 305 tons averaging 45% Mn and 10% SiO₂ mined in 1916 from an adit and a drift which exposed ore to a depth of 20'

Geology: 4' wide vein traced for 35'; pinches to 18" at one end and grades into quartz at other end; major ore mineral is rhodonite with pyrite, chalcopyrite, calcite, malachite, and manganese oxides

Name: Josephson

Location: *Sec. 10, T.21N., R.4E., MDBM, Butte Co. (25)

Description: several pits expose material that reportedly may average about 30% MnO

Geology: several tabular deposits with a total thickness of about 10'; pyrolusite intermixed with silica in slate and chert

MOLYBDENUM [Mo]

OCCURRENCES

Location: SW $\frac{1}{4}$ Sec. 7, T.18N., R.13E., MDBM, Nevada Co.

Geology: (See under METALLICS, Copper)

Conclusions: shows little promise

SILVER [Ag]

MINES AND PROSPECTS

Name: Wabena (*Wubben*)

Location: SW $\frac{1}{4}$ Sec. 29, T.16N., R.14E., MDBM, Placer Co.

(See under METALLICS, Gold)

Name: Giant King

Location: *E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 13, T.17N., R.10E., MDBM, Nevada Co.

(See under METALLICS, Gold)

Name: Yuba Consolidated (*Central and Grey Eagle Group, Hathaway Ledge, Marietta, Mayflower, Rising Sun*)

Location: *Secs. 11, 14, and 15, T.17N., R.11E., MDBM, Nevada Co.

(See under METALLICS, Gold)

Name: Eagle Bird (*Gold Bug*)

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 12, NW $\frac{1}{4}$ Sec. 13 (Eagle Bird), and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 14 (Gold Bug), T.17N., R.11E., MDBM, Nevada Co.

(See under METALLICS, Gold)

Name: Alaska (*Sierra Alaska*)

Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 5, and NW $\frac{1}{4}$ Sec. 8, T.18N., R.9E., MDBM, Sierra Co.

(See under METALLICS, Gold)

Name: Sixteen-to-One (*includes Eclipse, Ophir, Tightner, and Twenty-One*)

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.18N., R.10E., and SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 34, T.19N., R.10E., MDBM, Sierra Co.

(See under METALLICS, Gold)

Name: Del Norte and Scotia

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4, T.18N., R.10E., and SE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.19N., R.10E., MDBM, Sierra Co.

(See under METALLICS, Gold)

Name: Spanish (*includes Upper Spanish*)

Location: *W $\frac{1}{2}$ Sec. 19, and Secs. 30 and 31, T.18N., R.11E., MDBM, Nevada Co.

(See under METALLICS, Gold)

Name: Ancho-Erie (*Canton, Dandarine, Dublin Bay Consolidated, Edison, Holland*)

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 20, and NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 21, T.18N., R.11E., MDBM, Nevada Co.

(See under METALLICS, Gold)

Name: Gold Point (*Grey Eagle*)

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 28, T.20N., R.11E., MDBM, Sierra Co.

(See under METALLICS, Gold)

Name: Surcease Group (*includes Surcease, Bunker Hill, and Treasure Hill*)

Location: *Secs. 4, 5, 6, and 7, T.21N., R.5E., MDBM, Butte Co.

(See under METALLICS, Gold)

Name: Big Bend

Location: *SE $\frac{1}{4}$ Sec. 8, T.21N., R.5E., MDBM, Butte Co.

(See under METALLICS, Zinc)

TUNGSTEN [W]

MINES AND PROSPECTS

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 1, T.14N., R.14E., MDBM, Placer Co.

(1)

Description: several cuts and five diamond drill holes; drill-hole assays average about 0.4% WO₃ and outline scheelite-bearing tactite zone 20' by 70' by 130' which contains approximately 15,000 tons; 125 tons of 6-10% WO₃ reported mined

Geology: scheelite in tactite zones associated with marble in mica schist roof pendants in granitic rocks; scheelite-bearing zone terminated by granitic dike and fault

OCCURRENCES

Location: *N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 1, T.14N., R.14E., MDBM, Placer Co.

(1)

Geology: two marble lenses in mica schist roof pendant in granitic rocks; westernmost lens contains scheelite-bearing tactite zone 6' wide by 70' long by at least 30' deep with reserve of about 1000 units of WO₃; minor scheelite occurrence about 20' long in other lens

ZINC [Zn]

MINES AND PROSPECTS

Name: Spanish (*includes Upper Spanish*)

Location: *W $\frac{1}{2}$ Sec. 19 and Secs. 30 and 31, T.18N., R.11E., MDBM, Nevada Co.

(See under METALLICS, Gold)

Name: Surcease Group (*includes Surcease, Bunker Hill, and Treasure Hill*)

Location: *Secs. 4, 5, 6 and 7, T.21N., R.5E., MDBM, Butte Co.

(See under METALLICS, Gold)

Name: Big Bend

Location: *SE $\frac{1}{4}$ Sec. 8, T.21N., R.5E., MDBM, Butte Co.

(1,8,10)

Description: 6,204,000 lbs. Zn, 1,004,000 lbs. Cu, 118,000 lbs. Pb, 34,945 oz. Ag, and 1,289 oz. Au reported produced from 28,817 tons of ore in 1943-45; ore reported to average 13% Zn, 2% Cu, and 0.2% Pb; developed by 134' shaft, 360' shaft and 472' of drifts

Geology: ore is composed of banded sphalerite, chalcopyrite, pyrite, chalcocite, covellite, tetrahedrite, galena, bornite, gold, and silver; replacement deposits in chlorite-sericite schist

Industrial Rocks and Minerals

Industrial rocks and minerals generally occur in deposits¹ of large volume and are of relatively low unit value. Most of these deposits are easily mined by open-pit methods. Many new uses are being developed for some of these materials, and consumption for conventional uses² increases with population and industrial growth. Because deposits of many of these commodities are widespread, proximity to market is a most important factor.

Of the industrial rock and mineral deposits on Company land in the PART I area, the following are considered to be the most promising:

CLAYS:

Sec. 3, T.18N., R.9E., MDBM, Sierra Co.

SILICA:

S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$, and W $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4, N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 9, and N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 10, T.1N., R.1E., MDBM, Contra Costa Co.

Ione formation stream channel and flood-plain deposits (see Mineral Commodity Map I for general locations)

ASBESTOS

Asbestos is a general name given to several fibrous minerals in the amphibole and serpentine groups. The utility of asbestos minerals is derived from their fibrous, noncombustible, and noncorrosive characteristics.

Longer fibers of chrysotile asbestos, capable of being spun into fabrics, are used primarily in the manufacture of friction materials such as brake linings and clutch facings. Spinning-grade asbestos is also used for fireproof cloth, electrical insulation fabrics, and heat-resistant conveyor belting. Rubber-treated asbestos cloth is used for special fluid-tight gaskets.

¹Deposits at locations indicated by * are not owned by Southern Pacific.

²Information regarding conventional uses for many commodities is abstracted from:

Wright, L. A., ed., 1957, Mineral commodities of California: Calif. Div. Mines Bull. 176, 736 p.

Bates, R. L., 1960, Geology of industrial rocks and minerals, Harper & Bros., New York.

U. S. Bur. Mines, 1960, Mineral facts and problems (Bull. 585), 1016 p.

Short fiber chrysotile asbestos is primarily used for asbestos-cement products such as pipe, shingles, wallboard, corrugated siding, and in heat-insulating materials. Shorter non-spinning grades of chrysotile are mixed with binder and molded into brake bands and clutch facings, asphalt and plastic floor tiles, paper, and millboard.

Tremolite and anthophyllite are limited by lower fiber strength to use as fillers in rubber, fire-resistant paint, asphalt, and plastic products. They are also used for coating welding rods and for acid-resistant filters, fittings and gaskets.

Chrysotile asbestos occurs mainly in veins along shear zones in serpentine. Its fibers usually extend across the vein (cross fiber). Tremolite and anthophyllite asbestos occur in small pods and veins in serpentinized ultramafic rocks. Their fibers parallel the vein walls (slip fiber).

MINES AND PROSPECTS

Name: Morgan

Location: *S $\frac{1}{2}$ Sec. 1, T.15N., R.10E., MDBM, Placer Co. (27)

Description: mined from three adits 1905–13; 70 tons reportedly produced in 1908

Geology: slip-fiber tremolite and short cross-fiber chrysotile “veins” in serpentine

Name: Iowa Hill

Location: *Secs. 28 and 33, T.15N., R.10E., MDBM, Placer Co. (27)

Description: about 35 tons mined from a 20' adit

Geology: slip-fiber tremolite occurs for 150' along faulted contact zone between serpentine and amphibolite schist; fibers 8" long

Name: Stark

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 2, and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 11, T.17N., R.10E., MDBM, Nevada Co. (1,27)

Description: 8,000 tons of asbestos-bearing rock mined and milled 1917–23; glory hole, drill holes, trenches, pits, and three adits

Geology: chrysotile asbestos in serpentine; 5–7% asbestos in two zones, one about 250' wide and the other 150' wide; fiber length 1/32–7/16" with majority of fibers under 3/16"

BARITE [BaSO₄]

Barite (specific gravity of 4.2–4.6) is primarily used in well-drilling muds and in lesser quantities in the manufacture of barium chemicals, pigments, glass, and porcelain. It is also used as paint and rubber fillers and as heavy aggregate in concrete.

MINES AND PROSPECTS

Name: Democrat

Location: *Sec. 24, T.16N., R.10E., MDBM, Nevada Co. (1,19,21)

Description: first mined in 1919 from pit on irregular barite outcrop 250' long, 15–24' wide, and 60' high; later workings include an adit to vein about 100' below pit floor and a 200' long drift 30' below pit with five raises to pit floor; about 35,000 tons of 85–98% BaSO₄ shipped prior to 1930

Geology: coarsely crystalline barite in 7–30' wide irregular hydrothermal replacement deposit along footwall of fault that strikes N5°E and dips 65°W

Name: Upper Spanish

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 19, and NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 30, T.18N., R.11E., MDBM, Nevada Co. (1,19)

Description: 35,000 tons of barite produced prior to 1955 from an open cut 300' long by 50' wide by 40' deep; 26 tons shipped daily during summer of 1959

Geology: coarsely crystalline barite in 8' wide hydrothermal vein that strikes N5°W–N10°E and dips 30–45°E in phyllite, quartzite, and mica schist

CLAYS

Scattered residual clay deposits¹ formed by tropical and subtropical weathering conditions during Eocene times occur at several localities. These deposits are formed by chemical weathering and are exposed in many large abandoned Tertiary gold placers. Other deposits also crop out in parts of Township 18 North, Ranges 8 and 9 East.

Clays formed in this manner are usually kaolinitic and their compositions reflect the rock types weathered. Their industrial utility is largely governed by the quantity of quartz, iron oxides, chlorite, or other contaminants they may contain. They range from several feet to several tens of feet in thickness, and should be thoroughly sampled and tested to determine their commercial applicability.

Kaolinitic clays are used in refractory clay products.

OCCURRENCES

Location: *Sec. 16, E $\frac{1}{2}$ SE $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 17, and Sec. 18, T.17N., R.11E., MDBM, Nevada Co. (1)

Description: clay exposed in idle Alpha and Omega gold placers

Geology: sericite, kaolinite, and quartz resulting from subtropical weathering of Paleozoic slate and phyllite during the Eocene epoch; testing of selected sample indicated clay contained iron oxide as its main contaminant

Location: Sec. 3, T.18N., R.9E., MDBM, Sierra Co. (1)

Geology: kaolinitic clay resulting from subtropical weathering of slate, phyllite and argillite; X-ray diffractograms of four selected samples indicated clay was largely kaolinite with minor amounts of quartz, iron oxides, and chlorite or vermiculite

Conclusions: additional sampling may develop large kaolinite reserves suitable for refractories

COAL

MINES AND PROSPECTS

Location: S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$, and W $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4, N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 9, and N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 10, T.1N., R.1E., MDBM, Contra Costa Co. (outside of Mineral Commodity Map area) (1,30)

¹ See reference to clays under INDUSTRIAL ROCKS AND MINERALS, Silica.

Description: extensive underground workings; part of Mount Diablo field which produced about 2,500,000 tons 1868–86 and an estimated additional 1,000,000 tons to 1902

Geology: lenticular coal seams a few inches to a few feet thick interbedded with sandstone and shale; subbituminous coal in two main beds which dip 20–35°N; Clark bed is 1.5–4.5' thick, and Black Diamond bed is 6–18' thick and about 375' stratigraphically below Clark bed

Conclusions: large reserves remain below workings

DECOMPOSED GRANITE

OCCURRENCES

Location: S $\frac{1}{2}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, and E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 21, T.18N., R.8E., MDBM, Yuba Co. (1)

Description: near several pits from which large amount of decomposed granite has been quarried for local use directly in roadbeds and as macadam component

Geology: decomposed granite resulting from deep weathering of medium to coarse-grained granodiorite

Conclusions: large decomposed granite source within one half mile of California Hwy. 49

MARBLE [CaCO₃ and CaMg(CO₃)₂]

MINES AND PROSPECTS

Name: Spreckels

Location: *Secs. 8 and 9, T.13N., R.9E., MDBM, Placer Co. (20)

Description: 25.66 acres quarried in early 1900's; lime produced in local kilns; reported good grade

Geology: fine-grained, bluish-gray marble associated with greenstone and chert

Location: *Secs. 20, 29, 30, and 31, T.13N., R.9E., MDBM, Placer Co. (20)

Description: several limestone deposits in 800-acre parcel; numerous kilns operated in early 1900's

Geology: marble associated with slate, phyllite, quartzite, and mica schist

Name: Arlington No. 1

Location: *NW $\frac{1}{4}$ Sec. 8, T.21N., R.4E., MDBM, Butte Co. (20)

Description: quarry; some lime produced; reserves of about a million tons; one sample analysed 96.8% CaCO₃, 6.0% MgCO₃, 0.48% SiO₂, 0.21% Al₂O₃, and 0.39% Fe₂O₃; a second sample analysed 80.0% CaCO₃, 5.7% MgCO₃, 7.38% SiO₂, 3.59% Al₂O₃, and 1.68% Fe₂O₃

Geology: marble associated with argillite and schist

Name: Parrish

Location: *E $\frac{1}{2}$ Sec. 18, T.21N., R.4E., MDBM, Butte Co. (20)

Description: marble mined from pit and short adit and calcined in kiln on property; estimated reserves of 250,000 tons projecting surface outcrops 100' deep; analyzed 95.6–98.47% CaCO_3 , 0.62–2.0% SiO_2 , and less than 1% each of Al_2O_3 , Fe_2O_3 , and MgO

Geology: marble lens associated with argillite and schist

Name: Poe (King)

Location: *SE $\frac{1}{4}$ Sec. 24, T.22N., R.4E., and NW $\frac{1}{4}$ Sec. 30, T.22N., R.5E., MDBM, Butte Co. (20)

Description: several hundred tons produced in 1929 from quarry

Geology: moderately dipping, thin marble lens about one mile long associated with schist

Name: Big Bend

Location: *SW $\frac{1}{4}$ Sec. 32, T.22N., R.5E., MDBM, Butte Co. (11,20)

Description: few hundred tons of marble shipped from quarry in 1929

Geology: two marble lenses associated with argillite, schist, and greenstone

Location: W $\frac{1}{2}$ Sec. 11, T.22N., R.6E., MDBM, Butte Co. (1,20)

Description: quarried in early 1900's; estimated reserves about 2.5 million tons, projecting surface outcrops 100' deep; composite of several selected samples analyzed 95.8% CaCO_3 , 2.3% MgCO_3 , 0.18% SiO_2 , 0.021% Al_2O_3 , and 0.028% Fe_2O_3

Geology: coarse-grained marble lens dipping about 65°NE and associated with argillite and schist

Conclusions: shows limited promise

Location: E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 35, T.22N., R.6E., MDBM, Butte Co. (1,11)

Description: quarried in early 1900's; estimated reserves of about 3.5 million tons, to 100' depth; composite of four selected samples analyzed 95.2% CaCO_3 , 1% MgCO_3 , 3.06% SiO_2 , 0.328% Fe_2O_3 , and 0.445% Al_2O_3

Geology: steeply dipping marble interbedded with schist and argillite

Conclusions: shows limited promise

OCCURRENCES

Location: NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 23, T.15N., R.15E., and W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 19, T.15N., R.16E., MDBM, Placer Co. (1)

Geology: white to buff, thin-bedded, coarsely-crystalline marble containing numerous thin lenticular bands of silica

Conclusions: shows little promise

Location: *Sec. 28, T.16N., R.13E., MDBM, Placer Co. (1)

Description: 200' wide by 4000' long marble lens in canyon of North Fork American River; estimated to contain about 30,000,000 tons; grade unknown

Geology: marble lens in slate and quartzite; locally fossiliferous

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 4, S $\frac{1}{2}$ NE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 5, and N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 9, T.18N., R.12E., MDBM, Nevada Co. (1)

Geology: coarsely crystalline, white to gray marble associated with chert and quartzite; locally converted to skarn in vicinity of granite intrusives

Location: *E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 9, W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 10, E $\frac{1}{2}$ Sec. 16, and E $\frac{1}{2}$ Sec. 21, T.18N., R.12E., MDBM, Nevada Co. (1)

Description: marble deposit two miles long is 0.5 mile wide at southern end and pinches out to north; estimated 6,000,000 tons of marble to 100' depth in Sec. 21

Geology: dark gray to white, finely to coarsely crystalline with calcareous slate interbeds

Location: *Secs. 30 and 32, T.20N., R.11E., MDBM, Sierra Co. (2)

Description: selected samples from Sec. 30 analyzed 55.4% CaCO₃, 41% MgCO₃, 4.9% SiO₂, and 0.36% Fe₂O₃

Geology: dolomitic marble lenses associated with quartz and slate

Name: Marysville

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 7 and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 18, T.21N., R.4E., MDBM, Butte Co. (20)

Description: estimated reserves of 150,000 tons; analyzed 97.50% CaCO₃, 1% MgCO₃, 0.23% SiO₂, 0.36% Al₂O₃, and 0.10% Fe₂O₃

Geology: marble lens associated with argillite and schist

Name: Arlington No. 2

Location: *Sec. 8, T.21N., R.4E., MDBM, Butte Co. (20)

Description: estimated reserves of 100,000 tons; analyzed 93.2% CaCO₃, 3.7% MgCO₃, 2.12% SiO₂, 0.54% Al₂O₃, and no Fe₂O₃

Geology: marble associated with argillite and schist

Name: Arlington No. 3

Location: *SE $\frac{1}{4}$ Sec. 8, T.21N., R.4E., MDBM, Butte Co. (20)

Description: estimated reserves of 800,000 tons, projecting surface outcrops 100' deep; analyzed 96% CaCO₃, 2% MgCO₃, 1% Al₂O₃, and less than 1% SiO₂

Geology: several marble lenses associated with schist and argillite

Name: Wilson

Location: *S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 18, T.21N., R.4E., MDBM, Butte Co. (20)

Description: high-calcium marble with 1.27–1.70% SiO₂ and very low Al₂O₃, Fe₂O₃, and MgO content

Geology: marble lens associated with argillite and schist

Name: Milsap Bar

Location: *NE $\frac{1}{4}$ Sec. 2, T.21N., R.6E., MDBM, Butte Co. (11,20)

Description: 30 to 40 acres of marble crop out, most of which has been withdrawn from mineral claim location because it lies within a public campground; sample analyzed 92.8% CaCO₃, 1.7% MgCO₃, 4.68% SiO₂, 0.39% Al₂O₃ + Fe₂O₃, 0.29% FeO, and 0.014% MnO

Geology: marble layers associated with argillite and schist

Location: W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 11, T.21N., R.6E., MDBM, Butte Co.

(1)

Geology: impure marble lens in argillite and schist

Conclusions: shows little promise

SAND AND GRAVEL

Sand and gravel occur in Pleistocene glacial outwash and moraine deposits and in Tertiary and Recent river channels. The glacial deposits are largely confined to higher portions of the Sierra Nevada.

These deposits could be used locally as aggregate in concrete, fill, subgrade, or ballast.

SERICITE SCHIST AND PHYLLITE

Sericite schist and phyllite, when sufficiently free of quartz and iron-oxide contaminants, can be used as a diluent for herbicides and insecticides. Sericite, when white and pure, can also be used as a paint extender, paper filler, or whitening agent.

Large quantities of sericite schist and phyllite are available in the Sierra Nevada. These materials are especially prevalent in Townships 17 and 18 North, Range 11 East, MDBM, where rocks of the Blue Canyon formation have undergone subtropical weathering conditions during early Tertiary times. White sericite, relatively free of contaminants occurs in several places in the above mentioned townships, and is especially well exposed in the Alpha and Omega hydraulic mine pits.

SILICA [SiO₂]

The industrial uses of silica are varied, and new uses are being developed. Major uses of silica sand include the manufacture of glass, ceramics, and ferro-silicon; as molding sand in foundries; as abrasives in grinding, polishing and cleansing processes; as inert fillers, extenders, and carriers; in filtration, fracturing of oil and gas strata to increase their yield, and in the production of metallic silicon. Silica sand has recently been utilized in petroleum refining as a heat distributor. Crushed and pulverized silica is also being used in increasing quantities, especially when high-purity silica is required. Lump silica is employed in the manufacture of refractory brick, portland cement, ferro-silicon, and silicon metal. It is also used as landscaping and decorative building stone. Pulverized silica is used in ceramic whitewares, glazes, frits, and as fillers and abrasives.

Stream-channel and flood-plain deposits of the Eocene Ione formation are exposed at numerous localities formerly operated as placer gold mines. These deposits, which contain very large volumes of sand and lesser amounts of gravel and clay, represent potentially valuable sources of industrial silica and clay. The distribution of some of the larger of these deposits is shown on Mineral Commodity Map I (in map pocket).

In numerous places the channel gravel and placered gravel is composed of quartz and quartzite cobbles and boulders which account for 75% or more of the material present. In other places there are millions of cubic yards of flood-plain sand with lesser amounts of clay. The sand is usually fine- to very fine-grained and contains varying proportions of intermixed and interbedded clay. Commonly the upper portions of the flood-plain deposits are composed of beds of "potter's clay" (kaolinite group minerals) ranging from

about five to forty feet thick. Silica is the major component of the sand and comprises almost 100% of the sand-sized clasts at some localities.

The flood-plain deposits merit additional study not only as silica sources, but also as sources of kaolinitic clay minerals.

MINES AND PROSPECTS

Name: Antioch

Location: S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$, and W $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 4, N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 9, and N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 10, T.1N., R.1E., MDBM, Contra Costa Co. (outside of Mineral Commodity Map area) (1)

Description: 326,000 tons of sand mined by room-and-pillar method; channel samples analysed 85.8–89.6% SiO₂, 4.4–6.9% Al₂O₃, and 1.26–1.92% Fe₂O₃; three water-washed, –30 mesh, +80 mesh samples analysed 91.12–97.62% SiO₂, 1.36–4.06% Al₂O₃, 0.04–0.06% Fe₂O₃, 0.2–0.07% MgO, and a trace of CaO

Geology: friable, white, impure silica sandstone beds strike N70–80°W and dip 20–35°N

Conclusions: about 8,000,000 tons available based on 60–70% extraction; 838,000 tons available to open-pit mining in bed averaging 36' thick with about 20' of overburden; preliminary tests indicate quality improvement with treatment

TALC AND SOAPSTONE

Talc and soapstone occur as lenses and discontinuous stratiform masses in the serpentized ultramafic rocks in the central region of the Sierra Nevada (see Figure 8). The properties of talc and soapstone which make them suitable for a number of uses are extreme softness, high slip, low moisture, oil and grease absorption, chemical inertness, high fusion point, low thermal and electrical conductivity, high dielectric strength, and high specific heat. These deposits carry several percent iron and for this reason grind and fire to darker colors than would iron-free material.

They can be used in certain ceramic, rubber, and roofing products, as a filler in asphalt, insecticide carriers, and as foundry facings.

MINES AND PROSPECTS

Location: *N $\frac{1}{2}$ Sec. 8, T.18N., R.9E., MDBM, Sierra Co. (1)

Description: blocks of soapstone quarried in 1890's for hoist foundations and around furnaces at Alaska mine and smelter

Geology: soapstone lenses in greenstone

Name: McLean

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 32, T.22N., R.5E., MDBM, Butte Co. (29)

Description: soapstone shipped to San Francisco Bay area and marketed as roofing granules prior to 1940

Geology: soapstone, containing talcose zones, in serpentized ultramafic rocks

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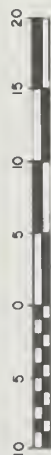
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GENERALIZED GEOLOGIC MAP OF A PORTION OF THE NORTHERN SIERRA NEVADA

May, 1962



Scale in miles



EXPLANATION

- | | | | |
|--|-----------------------------|--|------------------------|
| | Cenozoic rocks | | Ultramafic rocks |
| | Mesozoic metamorphic rocks | | Mafic plutonic rocks |
| | Paleozoic metamorphic rocks | | Silicic plutonic rocks |
| | Major faults | | |

- Compiled from Southern Pacific maps and published sources

Figure 8

Geologic History

SUMMARY

The oldest rocks in this part of the Sierra Nevada are those of the Upper Paleozoic Calaveras group. They comprise a belt about 25 to 30 miles wide which trends north-northwest and divides the area into essentially three regions (Figure 8). The regions to both the east and west of this central belt are occupied by Mesozoic metamorphic and plutonic rocks. Capping both Paleozoic and Mesozoic rocks are Cenozoic volcanic and sedimentary rocks which are evident as erosional remnants over the central region and occupy the majority of the extreme western region along the Sierran foothills and Great Valley and the extreme eastern region along the Sierran crest and east slopes.

Data presented are from Southern Pacific files and published literature.

PALEOZOIC SEQUENCE

The Calaveras group contains a great thickness of eugeosynclinal deposits that range in age from Devonian to Permian. The rocks of this group have been divided into several formational units. Neither the individual ages nor relative ages of these units have been satisfactorily determined. In order of their relative geographic positions, east to west, these units are the Blue Canyon, Tightner, Kanaka, Relief, Cape Horn, Delhi, and Clipper Gap formations. These formations have been repeatedly faulted, folded, and have undergone regional dynamic and local thermal metamorphism. Even so, the nature of their depositional characteristics were well enough preserved to indicate the predominantly sedimentary origin of the Blue Canyon, Delhi and Clipper Gap formations, and predominantly volcanic origin of the Tightner, Kanaka, and Cape Horn formations.

The Blue Canyon formation is composed largely of slate, mica schist, and quartz wacke with local lenses of marble and interbedded argillite and metaconglomerate. The metaconglomerate contains andesite clasts in a slate matrix. The Tightner formation is composed of hornblende-chlorite schist with minor interbeds of carbonaceous slate, marble, and quartz-, andalusite-, and chlorite-mica schist. Slate, banded chert, greenstone, quartzite, and metaconglomerate occur in the Kanaka formation. The metaconglomerate contains clasts of andesite and quartzite in a black slate matrix. The Relief formation, which is the thinnest and least continuous of all the formations of the Calaveras group, is composed of quartzite and quartzitic mica schist. West of the Relief formation are interbedded greenstone and slate of the Cape Horn formation. The Delhi formation is composed largely of argillite with minor interbeds of gray-

wacke and mica schist and local marble lenses. Slate, argillite, and metaconglomerate interbedded with some quartzite and marble compose the Clipper Gap formation. The metaconglomerate beds contain argillite, quartzite, and andesite clasts in a slate matrix.

MESOZOIC SEQUENCE

The oldest Mesozoic rocks are lenticular outcrops of Triassic marble in the eastern region which rest unconformably above rocks of the Blue Canyon formation. Proceeding eastward, a considerable thickness of metasedimentary rocks of the Jurassic Sailor Canyon formation unconformably overlie both Triassic marble and rocks of the Blue Canyon formation. Yet farther to the east, a great thickness of Jurassic meta-volcanic rocks rest conformably above the Sailor Canyon formation. Jurassic meta-volcanic rocks of the Logtown Ridge formation and Jurassic metasedimentary rocks of the Mariposa formation both rest unconformably upon Calaveras group rocks in the western region.

The Sailor Canyon formation is composed largely of slate and quartzite with some interbeds of chert and argillite, and the metavolcanic rocks which overlie the Sailor Canyon formation are largely of andesitic composition.

The Logtown Ridge formation is composed largely of metamorphosed tuffs, flows, and tuff breccias of basaltic composition, and the Mariposa formation of metaconglomerate, slate, argillite, quartzite, and graywacke.

The onset of the Nevadan orogenic episode witnessed the "cold intrusion" of ultramafic rocks within and adjacent to the central region during the Late Jurassic, followed by intrusions of Late Jurassic¹ mafic to silicic plutonic rocks in the western region and western half of the central region. Largely silicic plutonic rocks of early Late Cretaceous age² occur in the eastern region and eastern half of the central region. The plutonic rocks thermally metamorphosed (to hornfels) and migmatized many of the rocks they intruded, whereas those invaded by the "cold intrusions" of ultramafic rocks give no evidence of thermal metamorphism.

The ultramafic rocks include peridotite (largely dunite and saxonite), and serpentinite, with some pyroxenite. The western plutonic rock assemblage is composed largely of gabbro, diorite, and granodiorite, and the eastern assemblage is largely quartz diorite, granodiorite, and granite.

The Nevadan orogenic episode was followed by general uplift. Great thicknesses of rock were eroded from the Sierras and redeposited during Late Cretaceous time as conglomerate, sandstone, and shale of the Chico formation in the Great Valley to the west.

CENOZOIC HISTORY

This erosion continued into early Tertiary time and eventually exposed the tops of gold-bearing quartz veins. A mature erosion surface developed with an irregular trellis drainage pattern controlled by lithology and structure. Streams headed in the east and flowed eventually westward into the seas which occupied the Great Valley. The Paleocene was marked by semi-tropical weathering and the development of lateritic soil profiles. The streams draining the Sierras deposited auriferous gravel along their channels and fed lagoonal areas along the eastern edge of the Great Valley seas during the Eocene. These deposits comprise the Ione formation.

The Miocene witnessed the beginning of the extrusion of vast quantities of volcanic materials, and volcanic activity continued into Pleistocene time. These rocks, which

¹Curtis, G. H., Evernden, J. F., and Lipson, J., 1958, Age determination of granitic rocks in California by the potassium-argon method: Calif. Div. Mines Special Rept. 54, 16 p.

completely covered the pre-existent topography, include pyroclastic and flow rocks of the Mio-Pliocene Valley Springs and Mehrten formations and Pleistocene flow rocks.

The Valley Springs formation rests unconformably above the channel gravels of the Lone formation and is composed largely of rhyolite tuff and welded tuff. Following a short period of erosion, great thicknesses of andesite mudflows, tuffs, and tuff breccias of the Mehrten formation were deposited. These rest unconformably above the Lone and Valley Springs formations. Later during the Pliocene and possibly extending into the Pleistocene, basaltic to latitic flows were erupted, especially in the area to the north of Lake Tahoe.

STRUCTURE

It is thought that the spilitic eruptions of the Tightner, Kanaka, and Cape Horn formations may represent the early stages of a tectogenic cycle. This cycle was culminated near the close of the Paleozoic era by broad flexure folding of the rocks of the Calaveras group along axes which trended north-northwest.

The Blue Canyon formation (to the east) and the Delhi and Clipper Gap formations (to the west) might therefore represent the same stratigraphic position on opposite limbs of a geosyncline and underlie the formations of largely volcanic origin which lie between them. The rocks of the Calaveras group were uplifted and eroded near the close of the Paleozoic, prior to deposition of Triassic and Jurassic sedimentary and volcanic rocks.

Intrusion of these early Mesozoic formations by diabasic and spilitic dikes and sills during Late Jurassic time marked the onset of the Nevadan orogenic episode. These intrusions were followed by "cold intrusions" of ultramafic rocks along fractures developed concurrent with intense folding. The ultramafic rocks were all serpentinized to a greater or lesser degree at this same time. Folding followed the same general trend as was prominent at the end of the Paleozoic. The Nevadan orogenic episode continued from Late Jurassic into Early Cretaceous times and witnessed the intrusion of the entire area by large volumes of magma. A major fault zone, including the Melones fault, traverses the area southerly from Downieville (see Figure 8). The direction of relative movement along this fault zone is not known, but may include a left-lateral component of several miles. Fold axes to the west of this major fault plunge at low to moderate angles, whereas to its eastern side, they are approximately vertical.

The latest stage of the Nevadan orogenic episode—and economically the most important—was represented by repeated faulting along the entire belt and intrusion of late stage magmatic differentiates along these fractures. The lode gold deposits of the Sierra Nevada were emplaced at this time.

COMPILATION

	EPISODES		REGION
	DEPOSITIONAL	TECTONIC INTRUSIVE	
Paleozoic (Devonian ? to Permian ?)			central and eastern
		Paleozoic (late) to Triassic (early)	central
Triassic			eastern
Jurassic			eastern
Late Jurassic (early)			western
Late Jurassic (early)			western
		Jurassic (late)	all regions
		Jurassic (late) to Cretaceous (early)	central and western

DESCRIPTION

Accumulation of eugeosynclinal sediments and volcanics of Calaveras group which includes the Blue Canyon, Tightner, Kanaka, Relief, Cape Horn, Delhi, and Clipper Gap formations; relative ages of these formations unknown; Tightner, Kanaka, and Cape Horn formations were largely pyroclastic rocks of andesitic composition; Blue Canyon, Delhi, and Clipper Gap formations were largely chert, graywacke, shale, and sandstone.

Broad flexure folding and minor faulting accompanied by low-grade regional metamorphism; fold axes strike north-northwest and were approximately horizontal, plunging gently to north and south.

Deposition of marine carbonate sediments unconformably upon rocks of the Blue Canyon formation.

Marine deposition of shale, sandstone, and chert of Sailor Canyon formation unconformably on rocks of Blue Canyon formation and Triassic limestone; extrusion of great thicknesses of andesitic pyroclastics conformably upon sediments of Sailor Canyon formation.

Marine deposition of volcanic rocks of basaltic composition of Logtown Ridge formation unconformably over rocks of Calaveras group.

Marine deposition of graywacke, shale, sandstone, and conglomerate of Mariposa formation unconformably upon rocks of Calaveras group.

Intrusion of Paleozoic, Triassic, and Jurassic rocks by dikes and sills of diabase, feldspar porphyry, albitite, andesite, and spilite signaled onset of Nevadan orogenic cycle; constitute an insignificant portion of rock masses involved in orogenesis.

Nevadan orogenic episode: intense folding, faulting, general uplift and intrusion of pre-Nevadan rocks culminating in extensive regional metamorphism and local thermal metamorphism; rocks isoclinally folded along axes that strike north-northwest and plunge at moderate angles to north and south; high-angle reverse and minor normal faulting in central region with flattening of fault planes to west; major faults strike north-northwest and dip to east; trend of faults and folds swings to west-northwest in northwestern part of central region.

COMPILATION (continued)

DEPOSITIONAL	EPISODES		REGION
	TECTONIC	INTRUSIVE	
		Jurassic (late)	western and central
	Jurassic (late) to Cretaceous (early)	Jurassic (late) to Cretaceous (early)	central and western
	Late Cretaceous (early)	Late Cretaceous (early)	eastern and east-central
Late Cretaceous (late)			western
Paleocene-Eocene			western and central

DESCRIPTION

Intrusion of ultramafic rocks, largely dunite and harzburgite, along structurally and stratigraphically controlled zones of weakness (faults and metavolcanic rocks) accompanied by serpentinite "cold intrusions" as evidenced by lack of thermal metamorphism of wall rocks; plutonic intrusion of root-zone of tectonically active belt by calc-alkaline magma resulting in emplacement of gabbro, diorite, large quantities of granodiorite, and (at north end of central region) trondhjemite; plutonic rocks resulted from magmatic differentiation, palingenesis and metasomatism.

Low-grade regional metamorphism to greenschist facies of geosynclinal rocks; thermal metamorphism to amphibolite facies of rocks adjacent to plutonic masses; contemporaneous intrusion of late stage plutonic dikes and quartz veins (gold-bearing); regional uplift; volcanic and sedimentary rocks metamorphosed to greenstone, hornblende-chlorite schist, mica schist, slate, quartzite, phyllite, argillite, quartz wacke, metaconglomerate, and marble; hornfels and amphibolite resulted from thermal metamorphism.

Erosion of uplifted crustal section accompanied by plutonic intrusion of root zone by calc-alkaline magma resulting in quartz diorite, granodiorite, and granite with "rapakivi-type" granite in eastern part of central region; metasomatism of large enclaves of andesitic rocks produced some gabbro and diorite; wall rocks thermally metamorphosed to epidote-amphibolite facies; extensive movement along Melones fault resulting in uplift of hanging wall and tilting of fold axes on hanging-wall (eastern) side to nearly vertical position; late stage plutonic diking and quartz veining (gold-bearing sulfide ores); hornfels and migmatite zones produced along borders of plutons.

Erosion of uplifted land mass with streams draining west; deposition of conglomerate, sandstone, and shale of Chico formation in Great Valley seas.

Continued erosion into early Tertiary with mature physiography resulting by Eocene time; streams developed a quasi-trellis drainage pattern as governed by lithology and structure, heading in east and draining eventually to Great Valley seas in west; lateritic soil profiles developed, indicating semi-tropical weathering conditions; gold-bearing quartz veins exposed, eroded, and auriferous gravels deposited as Eocene river channel and lagoonal deposits (along Great Valley seas) of Lone formation.

COMPILATION (continued)

	EPISODES		REGION
	DEPOSITIONAL	TECTONIC INTRUSIVE	
Mio-Pliocene			all regions
Mio-Pliocene to Pliocene			all regions
Late Pliocene			north-central
Pliocene (late) to Pleistocene (early)			eastern, and north portion of central and western
		Pliocene (late) to Pleistocene (early)	eastern and central
Pleistocene			eastern and central
Pleistocene to Recent			northeastern
Recent			all regions

DESCRIPTION

Deposition of rhyolite tuff, welded tuff, and intervolcanic gravel of Valley Springs formation unconformably upon Paleozoic and Mesozoic rocks and Eocene Ione formation channel gravel; intervolcanic gravel locally auriferous.

Short erosional interval followed by deposition of andesite mudflows, tuff, tuff breccia, and intervolcanic gravel of Mehrten formation unconformably over Paleozoic and Mesozoic rocks, and rocks of the Ione and Valley Springs formations; intervolcanic gravel locally auriferous.

Deposition of basaltic tuff breccia mudflows of Tuscan formation unconformably upon Paleozoic and pre-upper Pliocene Tertiary rocks; rare interbedded volcanic conglomerate, sandstone, and tuffaceous sediments more prevalent to west.

Deposition of basalt, andesite, and latite flows; basalt tuff associated with cinder cones in Truckee area.

Uplift of Sierras to present position and approximate present elevation by normal faulting along eastern border of range and by warping; Sierras raised about 2000 feet along east flank and tilted to west.

Glacial erosion; deposition of glacial moraines and drifts.

Deposition of sand, silt, and clay in scattered playas.

Deposition of gravel, sand, silt, and clay in streams, lakes and reservoirs.

PART II

Klamath Mountains and Cascade Range

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Water Resources By: M. S. Tischler, *Geologist*

PART II encompasses areas mapped by Southern Pacific within:
Townships 26–48 North, Ranges 1–10 West and 1–3 East, MDBM.
See Mineral Commodity Map II in map pocket.



Shasta and California Iron Mines in right background. Bold Bluff of McCloud limestone from west side of McCloud River.

Metallics

The introductory paragraphs relating to deposits¹ of metallic mineral commodities in PART I (see page 11) are also pertinent here.

Of the metallic mineral deposits on Company land in the PART II area, the following are considered to be the most promising:

GOLD:

E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 35, T.32N., R.10W., MDBM, Trinity Co.
SW $\frac{1}{4}$ Sec. 35, T.38N., R.7W., MDBM, Trinity Co.
S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 19, T.40N., R.7W., MDBM, Siskiyou Co.
NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29, T.41N., R.6W., MDBM, Siskiyou Co.
S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 5, T.45N., R.7W., MDBM, Siskiyou Co.

IRON:

W $\frac{1}{2}$ Sec. 5 and W $\frac{1}{2}$ Sec. 7, T.34N., R.3W., MDBM, Shasta Co.
E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 7, T.35N., R.3W., MDBM, Shasta Co.
NW $\frac{1}{4}$ Sec. 31, T.37N., R.8W., MDBM, Trinity Co.
S $\frac{1}{2}$ Sec. 35, T.38N., R.7W., MDBM, Trinity Co.

CHROMIUM [Cr]

Chromite is the only ore mineral of chromium. The uses of chromium, composition of chromite, and specifications of the ores and concentrates are given in the introductory remarks under "Chromium" in PART I.

Small deposits of massive chromite, generally less than 200 long tons each, rarely a few thousand tons, have been mined from surface and near-surface workings. Most of such near-surface, ore-grade chromite lenses have been exhausted. Because of the lack of guides to chromite ore, such as mineralized faults and altered zones, no conclusions are given for deposits owned by Southern Pacific. Localities with production are considered most favorable for future exploration.

¹Deposits at locations indicated by * are not owned by Southern Pacific.

At some localities, chromite float has guided prospectors to minable lenses. Dunitic peridotite, commonly serpentized, is invariably the host rock. Locally, knife-thin sheared and crushed chromite along faults connects one lens to another.

From 1894 to 1960, sales of chromite ores and concentrates from Shasta, Siskiyou, and Trinity Counties totaled about \$3,000,000, 83% from Siskiyou County. The only significant production of chromite has been during World War I and II, and during the time of federal stockpile program (see Figure 5).

MINES AND PROSPECTS

Name: McArthur

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 27, T.28N., R.9W., MDBM, Tehama Co. (1)

Description: pits

Geology: disseminated and massive chromite in bands and lenses up to several feet thick in serpentized peridotite

Location: *W $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 14, T.31N., R.10W., MDBM, Trinity Co. (1)

Description: in late 1940's trench exposed 1-2 ton lens of chromite

Geology: serpentized peridotite

Name: Little Castle Creek (*Brown*)

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 2, T.34N., R.8W., MDBM, Shasta Co. (10,13,14)

Description: about 20,000 tons of 45-48% Cr₂O₃ mined from open cut, three shafts, and adit; 15,000 tons mined prior to 1917

Geology: 20-40' wide chromite lens, about 150' long and 54' deep in ultramafic rocks

Location: *N $\frac{1}{2}$ Sec. 34, T.35N., R.9W., MDBM, Trinity Co. (1)

Description: numerous pits along 200' strike

Geology: chromite to 10" wide strikes NE in faulted peridotite

Name: Silver Tip

Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 6, T.37N., R.5W., MDBM, Shasta Co. (1)

Description: pit

Geology: chromite with associated kammererite in sheared peridotite

Name: Shotgun Creek

Location: *Secs. 13 and 24, T.37N., R.5W., MDBM, Shasta Co. (14)

Description: short adits and shaft; about 3,000 tons used for furnace lining at Bully Hill and Keswick copper smelters

Geology: massive chromite in serpentine

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 17, T.37N., R.5W., MDBM, Shasta Co. (1)

Description: pit

Geology: massive chromite in peridotite

Name: Forest Queen

Location: *Sec. 22, T.37N., R.5W., MDBM, Shasta Co. (10,13)

Description: 60' incline in largest lens, adits in other lenses; 1000 tons averaging 43% Cr₂O₃ mined to 1918

Geology: chromite lenses in peridotite; largest lens was 4' wide with N40°E strike for 150' and 45°W dip for 100'

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 27, T.37N., R.5W., MDBM, Shasta Co. (1)

Description: pit

Geology: $\frac{1}{4}$ " chromite stringer in peridotite

Location: *NW $\frac{1}{4}$ Sec. 12, T.37N., R.6W., MDBM, Shasta Co. (1)

Description: trenches

Geology: massive and disseminated chromite in sheared peridotite

Location: E $\frac{1}{2}$ Sec. 3, T.38N., R.6W., MDBM, Trinity Co. (1)

Description: about 20 tons mined in 1918 from pits in SE $\frac{1}{4}$

Geology: chromite in sheared peridotite

Location: E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 5, T.38N., R.6W., MDBM, Trinity Co. (1)

Description: several trenches

Geology: angular chromite float

Location: S $\frac{1}{2}$ Sec. 11, T.38N., R.6W., MDBM, Trinity Co. (1)

Description: pits, trenches, and adits

Geology: disseminations and small lenses of massive chromite in serpentized dunite; deposits localized along shears trending N30–40°E and N75–80°W

Name: Black Crane and Black Crow

Location: *Sec. 14, T.38N., R.6W., MDBM, Trinity Co. (11)

Description: trenches

Geology: small lenses in ultramafic rocks

Name: Integral

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 15, NE $\frac{1}{4}$ Sec. 22, and NW $\frac{1}{4}$ Sec. 23, T.38N., R.6W., MDBM, Trinity Co.

(See under METALLICS, Mercury)

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 35, T.39N., R.4W., MDBM, Siskiyou Co. (1)

Description: large adit, many trenches

Geology: disseminations, lenses and bands in serpentized dunite; large tonnage of "pea" chrome ($\frac{1}{4}$ – $\frac{1}{2}$ " nodules)

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 8, T.39N., R.7W., MDBM, Trinity Co. (1)

Description: adits and trenches

Geology: disseminated chromite in serpentized peridotite

- Location:* *SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 12, T.39N., R.7W., MDBM, Trinity Co. (1)
Description: several trenches
Geology: chromite float
- Location:* SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 13, T.39N., R.8W., MDBM, Trinity Co. (1)
Description: pit; selected samples assayed 24.41–38.76% Cr₂O₃, 6.82–10.34% SiO₂, 9.62–10.05% Fe
Geology: disseminated and massive chromite in dunite with N30°E shear zone
- Name:* Foster
Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 34, T.39N., R.9W., MDBM, Trinity Co. (1)
Description: two pits
Geology: small lenses in N20°E shear zones in serpentinized peridotite
- Location:* *NE $\frac{1}{4}$ Sec. 18, T.40N., R.5W., MDBM, Siskiyou Co. (1)
Description: 35' incline; less than 100 tons mined; active 1956
Geology: disseminated chromite and lenticular, massive bands 4–6" wide which strike N20°W, dip 55°W in dunite
- Location:* *E $\frac{1}{2}$ E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 20, T.40N., R.6W., MDBM, Trinity Co. (1)
Description: pit
Geology: 1' wide band of massive chromite; disseminated chromite occurs on the ridge above pit; host rock is serpentinized peridotite with N60°W shear zone
- Location:* E $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 31, T.40N., R.6W., Trinity Co. (1)
Description: trench; small amount hand sorted and shipped
Geology: chromite bands to 4" thick strike NE and dip 35°NW in peridotite
- Location:* *NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 36, T.40N., R.6W., MDBM, Siskiyou Co. (1)
Description: pit
Geology: 2' by 10' band of serpentinized dunite; some uvarovite
- Location:* E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 13, T.40N., R.7W., MDBM, Siskiyou Co. (1)
Description: pit; selected sample assayed 36.98% Cr₂O₃, 12.38% Fe, 9.84% SiO₂
Geology: 18" wide zone of small bands, lenses, and disseminations trends N35°W in sheared, serpentinized ultramafic rock
- Name:* Grouse Creek
Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 13, T.40N., R.8W., MDBM, Siskiyou Co. (13,32)
Description: over 500 tons mined during World War I from small, massive chromite lenses; samples assayed to 64% Cr₂O₃; no shipments averaged less than 50% Cr₂O₃
Geology: lenses in peridotite along a general NNE-trending zone
- Name:* Masterson Ranch
Location: *N $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 23, T.40N., R.8W., MDBM, Siskiyou Co. (13,32)

Description: produced 150–1000 tons during World War I

Geology: disseminated and massive chromite in peridotite

Location: *E $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 8, T.41N., R.5W., MDBM, Siskiyou Co. (1)

Description: trench

Geology: sheared, disseminated chromite in serpentinized peridotite

Name: Meadow View

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 17, T.41N., R.5W., MDBM, Siskiyou Co. (1)

Description: trench

Geology: disseminated chromite in serpentinized peridotite intruded by a NE-trending dacite porphyry dike

Location: *SW $\frac{1}{4}$ Sec. 19, T.41N., R.5W., MDBM, Siskiyou Co. (1)

Description: pits

Geology: two lenses of disseminated chromite in sheared peridotite

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 19, T.41N., R.5W., MDBM, Siskiyou Co. (1,32)

Description: some shipments during World War I

Geology: massive chromite in peridotite

Location: *W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 28, T.41N., R.5W., MDBM, Siskiyou Co. (1)

Description: short adit yielded a little massive chromite

Geology: lens in peridotite

Name: Edwards (?)

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 30, T.41N., R.5W., MDBM, Siskiyou Co. (1)

Description: inclined shaft

Geology: disseminated chromite in peridotite

Name: Chastain

Location: *W $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 4, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: trench

Geology: disseminations in peridotite

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 7, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: NE-trending serpentinized shear zone

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 7, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: several pits and trenches

Geology: chromite in shear zone along peridotite-diorite contact

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 7, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: massive chromite from trench

Geology: chromite lens along shear zone in peridotite

- Location:* *SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 10, T.41N., R.6W., MDBM, Siskiyou Co. (1)
Description: pit
Geology: finely disseminated chromite in sheared peridotite near contact with pyroxenite
- Location:* *NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 10, T.41N., R.6W., MDBM, Siskiyou Co. (1)
Description: pit
Geology: disseminated chromite with minor amounts of magnetite and asbestos in serpentized shear zones in peridotite
- Location:* N $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 11, T.41N., R.6W., MDBM, Siskiyou Co. (1)
Description: several cuts
Geology: serpentized shear zone strikes N70°E, dips 45°NW in peridotite cut by NW-trending cross faults; disseminated chromite with minor amounts of magnesite and iron oxide
- Name:* Lloyd
Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 11, T.41N., R.6W., MDBM, Siskiyou Co. (1)
Description: trench
Geology: disseminated chromite in serpentized zone in sheared peridotite
- Name:* Bagley (*Josephine and Lucky Strike, Mountain*)
Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 24, T.41N., R.6W., MDBM, Siskiyou Co. (1,8,23,32)
Description: trenching at Josephine developed zones of disseminated chromite; 100 tons produced in 1920's at Mountain
Geology: disseminated chromite zones in altered dunite; zones strike N45–55°W, dip 45–70°SW; numerous faults; 53' of disseminated chromite in 12' zone exposed between two faults; Lucky Strike not worked but contains chromite float
- Location:* S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 1, T.41N., R.7W., MDBM, Siskiyou Co. (1)
Description: 2598 tons of shipping-grade chromite mined during World War I and II and the 1950's from trenches, and shallow adits; average grade 48% Cr₂O₃; Cr:Fe of 3:1
Geology: discontinuous, massive chromite lenses along a N40°E shear zone of variable dip in serpentized peridotite and dunite; chromite gouge along shear is guide between lenses
- Location:* *SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 1, T.41N., R.7W., MDBM, Siskiyou Co. (1)
Description: about 15 tons produced prior to 1918 from a small pit
Geology: NW-trending fault and shear zone in serpentized peridotite
- Location:* NE $\frac{1}{4}$ Sec. 1, T.41N., R.7W., MDBM, Siskiyou Co. (1)
Description: several tons from trenches, pits, and shallow adits
Geology: shear zone along N-trending fault in serpentized peridotite
- Name:* Dozier (*Mountain House, Genesis, or Gould*)
Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 2, T.41N., R.7W., MDBM, Siskiyou Co. (13,32)

Description: over 500 tons of shipping-grade chromite from several shallow workings; assayed 41.65–44.22% Cr_2O_3

Geology: massive chromite lenses in serpentinized peridotite and dunite

Name: Black Jack (*Gibbons Ranch?*)

Location: *SE $\frac{1}{4}$ Sec. 12, T.41N., R.7W., MDBM, Siskiyou Co. (1,32)

Description: considerable trenching; produced about 150 tons

Geology: chromite in serpentinized peridotite

Name: Browne Ranch (*Masterson and McBride*)

Location: *W $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1, and SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 2, T.41N., R.9W., MDBM, Siskiyou Co. (28)

Description: 16 tons of chromite produced in 1942

Geology: small lenses in serpentinized peridotite

Name: Ball Ranch

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 10, T.41N., R.9W., MDBM, Siskiyou Co. (13,32)

Description: few tons of medium-grade chromite from two pits in 1917

Geology: lens in serpentinized peridotite

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 22, T.41N., R.9W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: small lens in peridotite

Name: DeFerra (*Facer*)

Location: *W $\frac{1}{2}$ Sec. 36, T.41N., R.9W., MDBM, Siskiyou Co. (1)

Description: 150 to 1000 tons produced

Geology: serpentinized peridotite

Name: Burns Ranch

Location: *S $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 16, T.42N., R.6W., MDBM, Siskiyou Co. (1,13,32)

Description: caved adits; one carload in 1916 assayed 56% Cr_2O_3

Geology: massive and disseminated chromite in serpentinized peridotite

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 21, T.42N., R.6W., MDBM, Siskiyou Co. (1)

Description: two adits; 40 tons of disseminated chromite from 20' trench in 1953; about 35 tons of 20% Cr_2O_3 stockpiled in 1957

Geology: chromite occurrence strikes S80°E, dips 50°N in serpentinized sheared peridotite

Location: *S $\frac{1}{2}$ Sec. 23, T.42N., R.6W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: chromite in serpentinized peridotite

- Location:* SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 27, T.42N., R.6W., MDBM, Siskiyou Co. (1)
- Description:* adit and several pits; 68 tons of 40–45% Cr₂O₃ mined during World War I; remaining chromite assayed 29.07% Cr₂O₃ and 9.6% Fe with a Cr:Fe of 3:1
- Geology:* chromite occurs in flat dipping (10–15°S) faulted pods 6–8" wide and a few feet long in N-S shear zones in serpentinized peridotite
- Name:* Tucker
- Location:* *S $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 28, T.42N., R.6W., MDBM, Siskiyou Co. (1)
- Description:* pit
- Geology:* massive chromite in sheared peridotite
- Location:* NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 31, T.42N., R.6W., MDBM, Siskiyou Co. (1)
- Description:* two tons shipping-grade chromite from shallow pits; worked in 1918
- Geology:* serpentinized peridotite
- Location:* NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 31, T.42N., R.6W., MDBM, Siskiyou Co. (1)
- Description:* about 60 tons of 45–50% Cr₂O₃ from trenches during World War I and later; in 1953, eight tons of 43.78% Cr₂O₃ and 11.48% Fe produced
- Geology:* massive chromite lens in serpentinized peridotite
- Name:* Leviathan
- Location:* *SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 32, T.42N., R.6W., MDBM, Siskiyou Co. (1,32)
- Description:* 207 tons from several short adits and raises in 1917–18
- Geology:* shear zone in serpentinized peridotite
- Location:* SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 33, T.42N., R.6W., MDBM, Siskiyou Co. (1)
- Description:* 110 tons mined prior to 1918; 20 tons stockpiled 1918; 27 tons produced 1954 averaged about 46% Cr₂O₃, 11% Fe, and 5.8% SiO₂ with a Cr:Fe of 2.8:1
- Geology:* massive chromite lenses in serpentinized peridotite
- Name:* Scratch
- Location:* *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 35, T.42N., R.7W., MDBM, Siskiyou Co. (32)
- Description:* two adits
- Geology:* vertical breccia zone strikes N60°E to N85°W in ultramafic rocks
- Location:* E $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ and W $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T.42N., R.7W., MDBM, Siskiyou Co. (1,28,32)
- Description:* 322 tons mined since 1917 from several trenches and underground workings including a 70° incline to a depth of 140'; ore averaged 45–52% Cr₂O₃ with a Cr:Fe of 3.4:1
- Geology:* lenses in sheared serpentinized peridotite
- Location:* NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 35, T.42N., R.7W., MDBM, Siskiyou Co. (1,32)
- Description:* 37 tons from two small pits in 1943; assayed 41.73% Cr₂O₃ with Cr:Fe of 2.70:1
- Geology:* massive lenses in serpentinized peridotite

Name: Constable and Foster

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 36, T.42N., R.7W., MDBM, Siskiyou Co. (1)

Description: pit and 80' adit

Geology: 2-3' lens in serpentized peridotite

Name: Wild and Johnson

Location: *NW $\frac{1}{4}$ Sec. 19, T.42N., R.8W., MDBM, Siskiyou Co. (28)

Description: 120 tons of 53% Cr₂O₃ mined in 1943 from pits

Geology: lenses in serpentized peridotite

Name: Grant

Location: *Sec. 25, T.42N., R.9W., MDBM, Siskiyou Co. (13,32)

Description: 54 tons shipped in 1918

Geology: lenses in serpentized peridotite

Name: Simas Ranch

Location: *N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 2, T.43N., R.8W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: serpentized peridotite

Name: Flederman Leases

Location: *NE $\frac{1}{4}$ Sec. 30, T.43N., R.8W., MDBM, Siskiyou Co. (13,28)

Description: 75' adit driven N40°W and several pits; ten tons of 47% Cr₂O₃ shipped prior to 1918, and 30 tons of 51% Cr₂O₃ shipped in 1942

Geology: lenses in serpentized peridotite

Name: Serpa Ranch

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 15, T.43N., R.9W., MDBM, Siskiyou Co. (32)

Description: about 15 tons of disseminated chromite shipped in 1943-44 from small, widely scattered lenses; assayed 31.62-36.02% Cr₂O₃ and 10.30-11.11% Fe

Geology: disseminated chromite in peridotite

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 17, T.43N., R.9W., MDBM, Siskiyou Co. (1)

Description: a few pits

Geology: disseminated chromite in peridotite

Name: Rogers and Allen

Location: *Sec. 6, T.44N., R.7W., MDBM, Siskiyou Co. (32)

Description: produced about 150 tons

Geology: peridotite host

Location: N $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 13, T.44N., R.8W., MDBM, Siskiyou Co. (1)

Description: several pits; three tons shipped in 1918

Geology: peridotite host; no chromite in place but massive chromite float noted downslope

- Location:* NW $\frac{1}{4}$ Sec. 13, T.44N., R.8W., MDBM, Siskiyou Co. (1)
Description: 32 tons produced 1917–18
Geology: serpentinized peridotite
- Name:* Cramer Ranch
- Location:* *NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 22, T.44N., R.8W., MDBM, Siskiyou Co. (13)
Description: a few tons of medium-grade ore produced prior to 1918
Geology: small chromite lens in serpentine
- Location:* N $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 23, T.44N., R.8W., MDBM, Siskiyou Co. (1)
Description: about 50 tons of chromite produced from several cuts in the 1950's
Geology: massive chromite lenses and disseminated chromite in serpentinized peridotite
- Name:* Burton Ranch (*Costello*)
- Location:* *E $\frac{1}{2}$ Sec. 24, T.44N., R.8W., MDBM, Siskiyou Co. (1,28)
Description: 20 tons assaying 54% Cr₂O₃ with Cr:Fe of 2.9:1 shipped in 1945; two adits trending WNW and NW; one caved, one being developed (1957)
Geology: lenses of massive and disseminated chromite in serpentinized peridotite
- Name:* Allison (*Moffet Creek*)
- Location:* *NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26, T.44N., R.8W., MDBM, Siskiyou Co. (3,6,32)
Description: several pits, trenches, and adits; less than 150 tons shipped assaying 56.31% Cr₂O₃, 14.45% FeO, and 0.87% SiO₂
Geology: yellow-weathering diallage peridotite with small areas of serpentinization
- Name:* Lutrelle
- Location:* *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 26, T.44N., R.8W., MDBM, Siskiyou Co. (1,3,32)
Description: three trenches; about 75 tons shipped from the westernmost trench; the easternmost trench had "considerable" chromite removed from a 20' long lens; assayed 47.15% Cr₂O₃, 19.15% FeO, and 6.01% SiO₂
Geology: massive chromite lenses in yellow-weathering diallage peridotite, slightly serpentinized
- Name:* White (*Big Buckhorn, Eichorn*)
- Location:* *SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 26, T.44N., R.8W., Siskiyou Co. (3,32)
Description: about 50 tons mined from two trenches, 100' long
Geology: massive chromite lens in serpentinized peridotite
- Name:* F. W. Cramer
- Location:* *N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 26, T.44N., R.8W., MDBM, Siskiyou Co. (1)
Description: 40' adit
Geology: massive lens in serpentinized peridotite
- Name:* Lambert (*Peg Leg, Chromite King*)
- Location:* *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 26, T.44N., R.8W., MDBM, Siskiyou Co. (1,8,23,28,32)

Description: 531 tons produced through 1943 from a large trench and about 300' of subsurface workings; one lens produced 155 tons assaying 53.68% Cr₂O₃, 15.86% FeO, and 2.79% SiO₂

Geology: massive chromite stringers and lenses; ore occurs in dunite beneath hanging-wall fault which strikes N70–75°W, dips 20–30°N

Name: Hayes

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 32, T.44N., R.8W., MDBM, Siskiyou Co. (3)

Description: a pit and shallow adit; one specimen assayed 42.25% Cr₂O₃, 14.22% FeO, and 8.15% SiO₂

Geology: chromite along fracture planes, and irregular chromite pods to 3' wide in dunite with some serpentine

Name: Moffett Creek Group (*Southern, Simas Ranch*)

Location: *SE $\frac{1}{4}$ Sec. 34, and S $\frac{1}{2}$ Sec. 35, T.44N., R.8W., MDBM, Siskiyou Co. (3,28,32)

Description: between 500 and 1000 tons from 15 pits, trenches, open cuts, and short adits; assays from 44.20–53.98% Cr₂O₃, 15.23–17.62% FeO, and 2.79–6.98% SiO₂

Geology: mostly disseminated and narrow bands of chromite, some massive lenses in sheared, serpentinized peridotite

Location: *N $\frac{1}{2}$ Sec. 35, T.44N., R.8W., MDBM, Siskiyou Co. (1,32)

Description: several adits, shafts, and pits; chromite on dumps

Geology: serpentinized peridotite host

Name: Lang

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 14, T.45N., R.7W., MDBM, Siskiyou Co. (1,32)

Description: 150 tons mined to 1950 from several pits

Geology: chromite lenses in serpentinized peridotite

Name: Souza Ranch

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 21, T.45N., R.7W., MDBM, Siskiyou Co. (13)

Description: about ten tons stockpiled from two shallow trenches prior to 1918

Geology: occurs in NE-trending belt of serpentinized peridotite

Name: Butcher Hill (*Shebley*)

Location: *Sec. 23, T.45N., R.7W., MDBM, Siskiyou Co. (1,32)

Description: pit exposes three small lenses of chromite

Geology: serpentinized peridotite host

Location: S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 19, T.45N., R.10W., MDBM, Siskiyou Co. (1)

Description: several pits and trenches; selected samples assayed 54.75% and 37.47% Cr₂O₃

Geology: pea-sized nodules and some massive chromite in NW-trending zone

Name: Chrome Cliff

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 20, T.45N., R.10W., MDBM, Siskiyou Co. (1)

Description: a few tons shipped prior to 1949 from three pits

Geology: banded chromite in peridotite near the contact with graphite schist

Name: Lady Gray

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 30, T.45N., R.10W., MDBM, Siskiyou Co. (28)

Description: trench

Geology: 2' band of disseminated chromite in serpentinized peridotite

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.46N., R.8W., MDBM, Siskiyou Co. (1)

Description: trench

Geology: disseminated chromite in peridotite

Location: NE $\frac{1}{4}$ Sec. 9, T.46N., R.8W., MDBM, Siskiyou Co. (1)

Description: 320 tons averaging 42.5% Cr₂O₃ shipped in 1918 from 85' adit and trench; 600 tons of disseminated chromite (22% Cr₂O₃) stockpiled

Geology: lenses of massive and disseminated chromite in serpentinized peridotite

Location: SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 9, T.46N., R.8W., MDBM, Siskiyou Co. (1)

Description: trenches

Geology: massive chromite lenses in serpentinized peridotite

Location: *NW $\frac{1}{4}$ Sec. 18, T.46N., R.9W., MDBM, Siskiyou Co. (1)

Description: pit; disseminated chromite on dump

Geology: serpentinized peridotite host

Name: Buckhorn Bally

Location: *S $\frac{1}{2}$ Sec. 17, T.47N., R.8W., MDBM, Siskiyou Co. (1)

Description: shaft

Geology: some chromite in peridotite

Name: Snowy Ridge

Location: *Sec. 16, T.48N., R.9W., MDBM, Siskiyou Co. (1,32)

Description: 300 tons of 36.23–40.69% Cr₂O₃ with Cr:Fe of 2.24–2.50:1 produced during 1940–43

Geology: lens of massive chromite 1–4' thick in dunite

OCCURRENCES

Location: N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 23, T.31N., R.10W., MDBM, Trinity Co. (1)

Geology: serpentinized peridotite contains some chromite

Location: *N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 5, T.35N., R.8W., MDBM, Trinity Co. (1)

Geology: float of massive chromite up to 4"

Location: SE $\frac{1}{4}$ Sec. 27, T.35N., R.9W., MDBM, Trinity Co. (1)

Geology: chromite float assayed 32.52% Cr₂O₃, 12.94% Fe, and 9.12% SiO₂

- Location:* N $\frac{1}{2}$ Sec. 35, T.35N., R.9W., MDBM, Trinity Co. (1)
Geology: chromite float at two places
- Location:* *SW $\frac{1}{4}$ Sec. 22, T.36N., R.9W., MDBM, Trinity Co. (1)
Geology: poorly exposed massive chromite in peridotite can be traced from float for about 100' along a NE strike
- Location:* *N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 28, T.36N., R.9W., MDBM, Trinity Co. (1)
Geology: massive chromite to 8'' wide (averages 4'') and 100' long in peridotite; sample assayed 54.10% Cr₂O₃, 13.92% Fe, and 2.62% SiO₂
- Location:* SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 5, T.37N., R.5W., MDBM, Shasta and Trinity Counties (1)
Geology: disseminated chromite in sheared peridotite
- Location:* N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 7, T.37N., R.5W., MDBM, Shasta Co. (1)
Geology: chromite seams and a little kammererite in sheared peridotite
- Location:* *Sec. 15, T.37N., R.5W., MDBM, Shasta Co. (1)
Geology: massive chromite in peridotite
- Location:* *N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 31, T.37N., R.5W., MDBM, Shasta Co. (1)
Geology: chromite in peridotite
- Location:* *NE $\frac{1}{4}$ Sec. 2, T.37N., R.6W., MDBM, Trinity Co. (1)
Geology: 1'' thick chromite stringer in sheared peridotite
- Location:* *W $\frac{1}{2}$ Sec. 2, T.37N., R.6W., MDBM, Trinity Co. (1)
Geology: chromite in sheared peridotite
- Location:* E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 3, T.38N., R.6W., MDBM, Trinity Co. (1)
Geology: float containing disseminated chromite
- Location:* W $\frac{1}{2}$ Sec. 1, and S $\frac{1}{2}$ Sec. 3, T.39N., R.7W., MDBM, Trinity Co. (1)
Geology: several occurrences of disseminated chromite in serpentinized peridotite and dunite
- Location:* E $\frac{1}{2}$ Sec. 11, T.39N., R.7W., MDBM, Trinity Co. (1)
Geology: float of massive chromite
- Location:* NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 35, T.39N., R.9W., MDBM, Trinity Co. (1)
Geology: sheared serpentinized peridotite host
- Location:* *S $\frac{1}{2}$ Sec. 6, T.40N., R.5W., MDBM, Siskiyou Co. (1)
Geology: disseminated chromite in dunite float at two localities downslope from the prominent N-S ridge in the E $\frac{1}{2}$ of Sec. 6; float contains 40–80% chromite
- Location:* SE $\frac{1}{4}$ Sec. 7, T.40N., R.5W., MDBM, Siskiyou Co. (1)
Geology: dunite float containing 2–5% chromite occurs downslope from prominent N-trending ridge

Location: SE $\frac{1}{4}$ Sec. 25, T.40N., R.7W., MDBM, Trinity Co. (1)

Geology: disseminated chromite in dunite; selected sample assayed 29.01% Cr₂O₃

Location: NE $\frac{1}{4}$ Sec. 29, T.42N., R.6W., MDBM, Siskiyou Co. (1)

Geology: chromite in peridotite

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 23, T.44N., R.8W., MDBM, Siskiyou Co. (13)

Geology: chromite in serpentinized peridotite

COPPER [Cu]

Copper valued in excess of \$115,000,000 has been produced from Shasta, Siskiyou, and Trinity Counties between 1896 and 1960. More than \$112,000,000 was from Shasta County, largely from the East Shasta and West Shasta copper-zinc districts.

Almost all of the production from these districts was from massive sulfide replacement deposits of hydrothermal origin. Lenticular deposits in the East Shasta district are about 400 feet in maximum dimension, and are localized along shear zones in the Bully Hill rhyolite and along contacts of the Bully Hill rhyolite and Pit formation. Lenses are to 4500 feet long and are characteristically flat-lying in the West Shasta district. They are reportedly restricted to the upper part of the middle unit of the Balaklala rhyolite which is composed of discontinuous porphyritic flows interbedded with lenticular pyroclastic deposits.

The principal sulfide minerals in both districts are pyrite, chalcopyrite, and sphalerite with smaller amounts of galena, tetrahedrite-tennantite, and bornite.

MINES AND PROSPECTS

Location: S $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29, T.26N., R.7W., MDBM, Tehama Co. (1)

Description: shallow trenches; sample assayed trace Au, 0.7 oz. Ag, and 4.73% Cu

Geology: quartz, pyrite, and chalcopyrite in zone 1-4' wide, exposed for about 100' in sheared and serpentinized ultramafic rocks

Conclusions: shows limited promise

Location: *N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 17, T.28N., R.9W., MDBM, Tehama Co. (1)

Description: adit

Geology: copper minerals disseminated in gabbro and diorite

Name: Miner's Dream

Location: *Sec. 18(?), T.31N., R.5W., MDBM, Shasta Co.
(See under METALLICS, Gold)

Name: Mineral Mountain

Location: *Sec. 13, T.32N., R.6W., MDBM, Shasta Co. (14)

Description: 300' adit

Geology: pyrite and chalcopyrite in granite

Name: Mountain Monarch

Location: *Secs. 28 and 32, T.32N., R.6W., MDBM, Shasta Co. (14,20)

Description: 850' adit lacks about 75' of intersecting the projection of vein

Geology: 5' wide malachite vein in greenstone

Name: Greenhorn

Location: *NE¼ Sec. 6, T.32N., R.7W., MDBM, Shasta Co. (1,3,10)

Description: open pit and six adit levels, worked to 480' depth, total 3,000' long; in 1939, 120,000 tons of gossan mined for gold; 80,000 tons from upper part of deposit yielded about 700,000 lbs. copper with some gold and silver; drilled in late 1950's

Geology: extensive gossan over massive sulfides in sheared and altered Balaklala rhyolite near contact with quartz diorite; lens strikes N60°W, dips 40°SW

Name: Afterthought

Location: *Secs. 10 and 11, T.33N., R.2W., MDBM, Shasta Co.
(See under METALLICS, Zinc)

Name: Canyon

Location: *Sec. 2, T.33N., R.2W., MDBM, Shasta Co. (5)

Description: 70' adit

Geology: chalcopryite beneath gossan

Name: Donkey

Location: *Sec. 11, T.33N., R.2W., MDBM, Shasta Co. (1)

Description: 300 tons of massive sulfide mined prior to 1900 from a 200' shaft and 550' of drifts; three drill holes (1951) intersected disseminated sulfides

Geology: copper sulfides in narrow fault zone that strikes E-W and dips 75°S in Bully Hill rhyolite near contact with slate

Name: Roseman

Location: *Sec. 3, T.33N., R.4W., and Sec. 34, T.34N., R.4W., MDBM, Shasta Co. (5)

Description: 700' of adits and 200' of shafts and winzes

Geology: shallow copper carbonate; sulfides at depth; on contact of limestone and quartz diorite

Name: Friday-Lowden

Location: *Secs. 5 and 6, T.33N., R.5W., MDBM, Shasta Co. (5)

Description: about 800' of adits

Geology: NE-trending copper-bearing zone in Balaklala rhyolite; some gold

Name: Akers

Location: *Secs. 6 and 7, T.33N., R.5W., MDBM, Shasta Co. (24)

Description: several adits

Geology: pyritized shear zones in greenstone trend N and NW; some chalcopryite and traces of bornite reported to contain \$2.00 per ton in gold and silver; small lens on south side Squaw Creek contains 2-6% copper

Name: Balaklala Angle Station

Location: *Sec. 7, T.33N., R.5W., MDBM, Shasta Co.

(19)

Descriptions: many shafts, short adits, and drill holes

Geology: landslide block containing gossan

Name: Dozier

Location: *W $\frac{1}{2}$ Sec. 13, T.33N., R.5W., MDBM, Shasta Co.

(20)

Description: 170' adit and several shallow pits and adits

Geology: gossan 200' by 30' near rhyolite dike

Name: Indian and Last Chance

Location: *S $\frac{1}{2}$, NE $\frac{1}{4}$, and S $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 29, T.33N., R.5W., MDBM, Shasta Co.

(14)

Description: several hundred feet of adits and drifts

Geology: copper sulfides and oxides in greenstone

Name: Great Verde (*Vulcan*)

Location: *E $\frac{1}{2}$ Sec. 11, T.33N., R.6W., MDBM, Shasta Co.

(19)

Description: 1,500' exploratory adit and other adits

Geology: gossan derived from disseminated and locally massive sulfides in Balaklala rhyolite

Name: Crystal

Location: *W $\frac{1}{2}$ Sec. 11, T.33N., R.6W., MDBM, Shasta Co.

(19)

Description: many short adits

Geology: pyritized Balaklala rhyolite capped with lenses of gossan to 2' thick

Name: Balaklala

Location: *Secs. 11, 12, 13, and 14, T.33N., R.6W., MDBM, Shasta Co.

(19)

Description: about 1,200,000 tons yielding 67,200,000 lbs. copper with zinc, gold, and silver values produced from 1890–1928, from underground workings

Geology: two bodies of massive sulfide ore in Balaklala rhyolite

Name: Shasta King

Location: *W $\frac{1}{2}$ Sec. 12, T.33N., R.6W., MDBM, Shasta Co.

(19)

Description: about 84,000 tons produced 1908–19 yielded approximately 5,000,000 lbs. copper with zinc, gold, and silver values; copper zinc ratio about 1:3; worked from adits, drifts and stopes

Geology: flat-lying sulfide replacement deposit to 590' by 500' by 42' in Balaklala rhyolite

Name: Spread Eagle

Location: *E $\frac{1}{2}$ Sec. 13, T.33N., R.6W., MDBM, Shasta Co.

(19)

Description: about 3,000' of exploratory adits

Geology: 20–30' thick gossan caps sulfides in Balaklala rhyolite

- Name:* Keystone
Location: *NE $\frac{1}{4}$ Sec. 14, T.33N., R.6W., MDBM, Shasta Co. (19)
Description: 122,000 tons mined via adits yielded about 14,500,000 lbs. copper with zinc, gold, and silver values
Geology: flat-lying sulfide replacement deposits in sheared Balaklala rhyolite
- Name:* Stowell
Location: *Secs. 14 and 23, T.33N., R.6W., MDBM, Shasta Co. (19)
Description: 39,538 tons mined from adits 1900–19 yielded about 2,400,000 lbs. copper with zinc, gold, and silver values
Geology: sulfide replacement in Balaklala rhyolite
- Name:* King Copper
Location: *Secs. 23 and 24, T.33N., R.6W., MDBM, Shasta Co. (19)
Description: 1000' of adits
Geology: pyritized, silicified, and argillized Balaklala rhyolite
- Name:* Ingersoll (*Peerless*)
Location: *Secs. 25 and 36, T.33N., R.6W., MDBM, Shasta Co. (14)
Description: 540' of adits
Geology: gossan in Balaklala rhyolite
- Name:* Sugarloaf
Location: *Sec. 26, T.33N., R.6W., MDBM, Shasta Co. (5,19)
Description: 12 adits totaling 4365'
Geology: pyrite cubes localized along N-trending fissure in Balaklala rhyolite
- Name:* Lone Star
Location: *Sec. 27, T.33N., R.6W., MDBM, Shasta Co. (19)
Description: two short adits; copper values reported in drill cores
Geology: flat-lying gossan caps massive sulfide replacement deposit about 85' long, 20' wide and a maximum of 10' thick in Balaklala rhyolite
- Name:* Little Nellie
Location: *Sec. 27 and NW $\frac{1}{4}$ NW $\frac{1}{4}$ (?) Sec. 35, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Gold)
- Name:* New Okosh
Location: *SW $\frac{1}{4}$ Sec. 34, T.33N., R.6W., MDBM, Shasta Co. (1)
Description: 35,000 tons averaging 2.5% Cu and 3.5% Zn reportedly blocked out
Geology: massive, steeply dipping sulfide deposit 10' wide occurs along N30–45°E trend in Balaklala rhyolite
- Name:* Old Okosh
Location: *SW $\frac{1}{4}$ Sec. 34, T.33N., R.6W., MDBM, Shasta Co. (1)

Description: adit and 120' of drifts

Geology: shear zone with irregular sulfide replacement to 2' wide in rhyolite strikes about N30°E, dips 70–80°SE

Name: Mountain Copper Co. (*Iron Mountain, Hornet, Richmond*)

Location: *N $\frac{1}{2}$ Sec. 34 and NW $\frac{1}{4}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 35, T.33N., R.6W., MDBM, Shasta Co.

(See under INDUSTRIAL ROCKS AND MINERALS, Pyrite)

Location: *Sec. 10, T.34N., R.3W., MDBM, Shasta Co.

(14)

Description: two adits 80' and 400' long

Geology: copper-bearing sulfides

Name: Shasta May Blossom

Location: *W $\frac{1}{2}$ Sec. 14, T.34N., R.3W., MDBM, Shasta Co.

(2)

Description: seven adits, many pits and trenches

Geology: much pyrite and minor chalcopyrite in silicified shale of the Pit fm. and quartz keratophyre of the Bully Hill rhyolite; several gossans to 20' thick

Name: Bully Hill and Rising Star

Location: *Secs. 15, 16, 21, and 22, T.34N., R.3W., MDBM, Shasta Co.

(2)

Description: \$640,000 in gold and silver produced 1877–81; from 1900–27, nearly 49,000,000 lbs. of copper, 25,000,000 lbs. of zinc, 2,200,000 oz. of silver and 38,200 oz. of gold were recovered from 580,000 tons of ore; Bully Hill developed by nine levels with connecting workings to 1100' depth; Rising Star developed to a depth of 1000' by seven levels with connecting workings

Geology: several tabular to cigar-shaped, massive replacement lenses of sulfide ore to 300' by 300' by 40' localized along shear zones in and near quartz keratophyre of the Bully Hill rhyolite; contain pyrite, sphalerite, chalcopyrite, galena, tetrahedrite-tennantite, and bornite, many of which are gold and silver bearing

Name: Copper City

Location: *SW $\frac{1}{4}$ Sec. 21, T.34N., R.3W., MDBM, Shasta Co.

(2)

Description: initial discovery in East Shasta Copper-Zinc District in 1862; three adits

Geology: structure and host rock nearly identical to Bully Hill

Name: Brushy Canyon

Location: *Sec. 34, T.34N., R.3W., MDBM, Shasta Co.

(2)

Description: adits and pits

Geology: highly silicified keratophyre and tuff of the Pit fm. capped by gossans to 10' thick

Name: Reno

Location: *Sec. 20, T.34N., R.4W., MDBM, Shasta Co.

(5)

Description: shallow shafts and adits

Geology: copper minerals, probably in Balaklala rhyolite

Name: Shasta Belmont

Location: *Sec. 24, T.34N., R.4W., MDBM, Shasta Co. (24)

Description: 150 tons from two adits and a shaft yielded about 21,000 lbs. of copper with silver values

Geology: chalcopyrite and chalcocite with pyrite in quartz vein 6–24" wide along E-W fracture in Dekkas andesite

Location: *Sec. 24, T.34N., R.4W., MDBM, Shasta Co. (24)

Description: four adits 20–150' long

Geology: sulfides containing copper, gold and silver in quartz along NE-trending faults in tuff and tuff breccia

Name: Shasta National

Location: *Sec. 18, E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 19, and Sec. 20, T.34N., R.5W., MDBM, Shasta Co. (24)

Description: several adits

Geology: hydrothermally altered Balaklala rhyolite

Name: Golinsky

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 28, T.34N., R.5W., MDBM, Shasta Co. (10,19)

Description: two adit levels; produced about 6,000 tons yielding 308,000 lbs. of Cu, 25,000 oz. Ag, and 960 oz. Au

Geology: steeply dipping, massive sulfide body localized along a shear zone in Balaklala rhyolite

Name: Sutro (*Stauffer*)

Location: *NW $\frac{1}{4}$ Sec. 29 and NE $\frac{1}{4}$ Sec. 30, T.34N., R.5W., MDBM, Shasta Co. (19)

Description: operated 1913–18, and 1923–25; total production unknown but more than 35,000 tons from three main levels yielding about 5,000,000 lbs. of copper with silver and gold values; Sutro 29 Tunnel is about 2,000' long

Geology: replacement lenses of massive sulfide localized in Balaklala rhyolite

Name: Mammoth

Location: *Sec. 32, T.34N., R.5W., MDBM, Shasta Co. (19)

Description: adits with connecting workings to 870' depth; about 3,400,000 tons produced 1905–25 yielding about 242,000,000 lbs. of copper with gold, silver, and zinc values; also produced 84,000 tons of 21.10% zinc

Geology: large, flat-lying, tabular replacement deposits of massive, pyrite ore in Balaklala rhyolite

Name: Early Bird

Location: *SW $\frac{1}{4}$ Sec. 11, T.34N., R.6W., MDBM, Shasta Co. (19)

Description: 350' main adit; 40,000 tons produced 1922–28, yielding about 3,400,000 lbs. of copper with gold, silver, and zinc values

Geology: flat-lying elongate body of massive sulfide 460' long, average of 55' wide, and 15–20' thick in Balaklala rhyolite

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 9, T.36N., R.1W., MDBM, Shasta Co. (1)

Description: 50' adit

Geology: malachite in narrow siliceous fractures in andesite

Location: *Sec. 32, T.36N., R.9W., MDBM, Trinity Co. (1)

Description: 50' adit and 50' incline

Geology: quartz vein to 18" wide in hornblende diorite contains disseminated chalcopryrite and pyrite; vein is about 500' long, strikes N30°E, and dips 65°NW in hornblende diorite

Location: *W $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 1, T.37N., R.7W., MDBM, Trinity Co. (1)

Description: shallow workings

Geology: quartz vein 2-3' wide and at least 100' long strikes N40°W, dips 35°W in intrusive complex ranging from granodiorite to gabbro

Name: Copper Queen

Location: *NE $\frac{1}{4}$ Sec. 16, T.37N., R.7W., MDBM, Trinity Co. (26)

Description: short adits and one shaft

Geology: chalcocite, chalcopryrite, and copper carbonate localized along NE-trending fault zone between greenstone and serpentinitized peridotite; some associated gold values

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 25, T.37N., R.7W., MDBM, Trinity Co. (1)

Description: several adits; in 1956, magnetic, electro-magnetic, and geochemical surveys were conducted, and 9500' of trenches were bulldozed; selected samples from 60' wide zone assayed 0.31% Cu and 0.20% Ni; composite samples of gossan material assayed 0.20-0.44% Ni, 0.01-0.06% Zn, a little Cu and traces of Au and Ag

Geology: altered zone has strike length of about 1000' along NE-trending fault zone between serpentinite and siltstone; small silicified lenses containing pyrite, chalcopryrite, and copper silicate minerals assayed a maximum of 14.5% copper

Conclusions: shows little promise

Location: W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 17, T.38N., R.6W., MDBM, Trinity Co. (1)

Description: adit and small trench

Geology: malachite, chalcopryrite, azurite, pyrite, and quartz in two NW-trending veins, each 1.5-2' wide

Conclusions: shows little promise

Name: Monarch

Location: *E $\frac{1}{2}$ Sec. 7, T.40N., R.7W., MDBM, Siskiyou Co. (4,5,14,16)

Description: 200' of shallow adits and pits

Geology: sulfide ores of good grade reported

Name: Turner

Location: *Sec. 7, T.40N., R.7W., MDBM, Siskiyou Co. (4,5,16)

Description: shallow workings

Geology: chalcopryrite in serpentinitized peridotite

Name: Rader

Location: *Sec. 17, T.40N., R.7W., MDBM, Siskiyou Co. (4,5,16)

Description: development work

Geology: pyrrhotite in serpentinized peridotite

Name: Hummer

Location: *Sec. 18, T.40N., R.7W., MDBM, Siskiyou Co. (14,16)

Description: pit and trenches

Geology: copper sulfides in “quartz porphyry” dikes intruding serpentinized peridotite

Name: Schnider

Location: *W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 18, T.40N., R.7W., and E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 12, T.40N., R.8W., MDBM, Siskiyou Co. (4,5,16)

Description: trenches

Geology: pyrite and chalcopyrite with local chalcocite and azurite in peridotite

Name: Lytle

Location: *Sec. 20, T.40N., R.7W., MDBM, Siskiyou Co. (4,5,16)

Description: 300' of adits

Geology: 15–20' width of chalcopyrite and pyrrhotite with minor gold values along contact of “quartz porphyry” dike and serpentinized peridotite

Name: Copper King

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 20, T.40N., R.7W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Name: Silver Mountain

Location: *NW $\frac{1}{4}$ Sec. 20, T.40N., R.7W., MDBM, Siskiyou Co. (1,5,16)

Description: 5–6% Cu mined via adits to 1000' long and attendant workings; active 1919

Geology: chalcopyrite and other copper minerals in 5' vein striking N and dipping 45°W in sheared serpentinite

Name: Huntley

Location: *Sec. 12, T.40N., R.8W., MDBM, Siskiyou Co. (4,5,16)

Description: 100' of adits and a pit

Geology: pyrrhotite and chalcopyrite in serpentinized peridotite

Name: Polar Bear

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 12, T.40N., R.8W., MDBM, Siskiyou Co. (1,4,14,16,28)

Description: 200 tons of 17% Cu mined in 1900 from a 210' shaft and 120' adit; active 1917 and 1943

Geology: sulfides of copper, zinc, and iron in serpentinized peridotite intruded by diorite dikes

Name: Fortuna

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 14, T.40N., R.8W., MDBM, Siskiyou Co. (4,5,16)

Description: 40' pit

Geology: pyrrhotite in diorite

Location: NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29, T.41N., R.6W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Name: Houston (*Chalco*)

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 23, T.41N., R.7W., MDBM, Siskiyou Co. (1,16)

Description: about 35 tons mined from 100' shaft and 125' adit

Geology: chalcopryite, pyrite, and chalcantinite in quartz vein in metasedimentary rocks; strikes N70°E, dips 45°N

Location: *SW $\frac{1}{4}$ Sec. 25, T.41N., R.7W., MDBM, Siskiyou Co. (1)

Description: two pits

Geology: small fracture zone strikes N30°W in gabbro

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 26, T.41N., R.7W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: quartz with pyrite and malachite in shear zone that strikes N10°E, dips 60°W in gabbro

Name: Isabella

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 27, T.41N., R.7W., MDBM, Siskiyou Co. (1,8,16,20,23)

Description: several adits to 330' long and 45' shaft; active 1911-15, reopened 1957

Geology: 20' quartz vein trends NE along contact between gabbro and metasedimentary rocks; vein contains copper sulfides and copper carbonates with some gold and silver values

Name: Facey

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 23, T.41N., R.9W., MDBM, Siskiyou Co. (28)

Description: adit and 30' raise; active 1941

Geology: 3' wide vein with copper-carbonate and copper-oxide minerals strikes S60°W, dips 77°N in metasedimentary rocks

Name: Skelton

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ (?) Sec. 26, T.41N., R.9W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Name: Rothrop

Location: *Secs. 5, 6, 7 and 8, T.43N., R.8W., MDBM, Siskiyou Co. (1,5,14,16)

Description: shafts and adits

Geology: pyrrhotite and chalcopryite in 5-6' wide lenses along contact between serpentinized peridotite and metasedimentary rocks

Location: *SW $\frac{1}{4}$ (?) Sec. 36, T.46N., R.10W., MDBM, Siskiyou Co. (1)

Description: pits

Geology: traces of malachite and limonite in sheared chlorite schist

Name: Shaft Rock (*Denver-Chicago*)

Location: *W $\frac{1}{2}$ Sec. 17, T.47N., R.7W., MDBM, Siskiyou Co. (1)

Description: pits, trenches, and 600' of adits and drifts

Geology: massive and disseminated chalcopyrite with minor gold values in greenstone

OCCURRENCES

Location: *Sec. 2, T.37N., R.6W., MDBM, Trinity Co. (1)

Geology: malachite along NW-trending fault zone in peridotite; trace to 5% Cu; minor disseminations of chromite

Location: SW $\frac{1}{4}$ Sec. 35, T.38N., R.4W., MDBM, Shasta Co. (1)

Geology: copper minerals in quartz vein

Conclusions: shows little promise

Location: NE $\frac{1}{4}$ SW $\frac{1}{4}$ and W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 13, T.40N., R.6W., MDBM, Trinity Co. (1)

Geology: copper-bearing quartz-carbonate vein strikes N60–70°W along contact between diorite and peridotite; quartz vein 300' long and 2' wide with chalcopyrite and pyrite overlies a carbonate vein 3–5' wide and 100' long containing malachite with pyrite casts; sample assayed 0.35% Cu and 0.40 oz. Ag

Conclusions: shows little promise

Location: S $\frac{1}{2}$ S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 11, T.40N., R.7W., MDBM, Siskiyou Co. (1)

Geology: traces of copper-oxide minerals in gabbro

Conclusions: shows little promise

Location: NW $\frac{1}{4}$ Sec. 23, T.40N., R.7W., MDBM, Siskiyou Co. (1)

Geology: several dikes assayed trace of Au, 0.05–0.3 oz. Ag, and 0.05–0.65% Cu in peridotite

Conclusions: shows little promise

Location: *SW $\frac{1}{4}$ Sec. 12, and NE $\frac{1}{4}$ Sec. 14, T.40N., R.8W., MDBM, Siskiyou Co. (4,14,16)

Geology: pyrrhotite with copper minerals in gabbro and serpentinized peridotite

TRENDS

Location: NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 3, T.32N., R.6W., MDBM, Shasta Co. (1,19)

Geology: on strike of mineralized shear zone trending S30°W at Old Okosh across north line of Sec. 3; part of this parcel contains the upper part of middle unit of Balaklala rhyolite, which is the host rock in the West Shasta Copper-Zinc District

Conclusions: results of geochemical and geophysical surveys are not promising

Location: S $\frac{1}{2}$ Sec. 5, T.32N., R.7W., MDBM, Shasta Co. (1)

Geology: pervasively altered and weakly mineralized area to 2,000' wide trends WNW along contact of quartz diorite of Shasta Bally batholith with Copley greenstone; Balaklala rhyolite is nearby; area is altered by silicification, sericitization, and kaolinization; disseminated pyrite common throughout entire altered zone, and is somewhat more intense along shears; on same contact as Greenhorn in E $\frac{1}{2}$ Sec. 6

Conclusions: geochemical survey indicates possibility of concealed copper-bearing rock

GOLD (lode) [Au]

Gold, including both lode and placer, valued in excess of \$136,000,000 has been produced from Shasta, Siskiyou, and Trinity Counties between 1880 and 1960. Of this total about one-third was from each county. If the proportion of lode to placer gold production for the entire State of California is applicable to these counties, about \$50,000,000 in lode gold could be assumed to have been produced from them during the 80-year period.

All lode gold deposits are spatially and genetically related to plutonic rocks and are found in a variety of country rocks. The gold occurs in late-stage magmatic quartz veins, and is commonly associated with sulfide minerals.

The country rocks in which lode gold deposits occur are generally consistent within a given area, as outlined below:

1) Klamath Mountains region north of Township 42 North (Figure 9, page 192)—metamorphic rocks of the Triassic Applegate group.

2) west-central portion of the Klamath Mountains region, between Townships 36 and 42 North—usually Mesozoic ultramafic and mafic plutonic rocks.

3) the area centered about five miles east of the Lewiston Reservoir—commonly metamorphosed sedimentary and pyroclastic rocks of the Mississippian Bragdon formation.

4) the area centered about six miles west of Redding—Devonian Copley greenstone and Mesozoic mafic plutonic rocks.

For general statements pertinent to the economics of gold mining, see PART I, page 25.

MINES AND PROSPECTS

Name: Sunny Hill

*Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 6, T.30N., R.7W., MDBM, Shasta Co.*

(1,7,14)

Description: adit to vein; short drifts; shoot, 80–100' long; active during late 1900's and in 1933

Geology: vertical, 1' wide vein strikes N-S in hornblende schist

Location: SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 1, T.30N., R.8W., MDBM, Shasta Co.

(1)

Description: pits

Geology: quartz stringers in schist

Conclusions: shows little promise

Name: Buena Vista

*Location: *Sec. 5, T.31N., R.5W., MDBM, Shasta Co.*

(7)

Description: incline and adit; 0.14–0.86 oz. Au reported

Geology: auriferous sulfides in 2–5' wide quartz veins adjacent to rhyolite dikes in greenstone

Name: Gold Leaf

*Location: *Sec. 5, T.31N., R.5W., MDBM, Shasta Co.*

(20)

Description: shaft

Geology: auriferous sulfides in quartz vein which strikes NE in greenstone and slate; shoot about 6' by 110' long

Name: Oro Grande

*Location: *Sec. 5, T.31N., R.5W., and Sec. 32, T.32N., R.5W., MDBM, Shasta Co.*

(7)

Description: 63' shaft and several thousand feet of trenches; \$15,000 produced from 36' long shoot above 50' level

Geology: network of quartz veins in greenstone; veins 1–2' wide, locally attain 5' widths

Name: Rattlesnake

Location: *Secs. 5 and 8, T.31N., R.5W., MDBM, Shasta Co. (7)

Description: several adits to vein

Geology: quartz veins to 6' wide in greenstone

Name: Black Diamond

Location: *Sec. 6, T.31N., R.5W., MDBM, Shasta Co. (10)

Description: pit

Geology: vertical quartz vein in greenstone near contact with granitic rocks; several other quartz veins in vicinity

Name: Edna B

Location: *Sec. 6(?), T.31N., R.5W., MDBM, Shasta Co. (14)

Description: 500' adit; drifts

Geology: 3' wide quartz vein strikes NE and dips 45°SE in “quartz porphyry”; shoot 200' long

Name: Boswell

Location: *Sec. 7, T.31N., R.5W., MDBM, Shasta Co. (7)

Description: 112' shaft, short adit, and pits

Geology: several quartz veins to a few feet wide in quartz diorite

Name: Golden Chariot

Location: *Sec. 7, T.31N., R.5W., MDBM, Shasta Co. (10)

Description: 165' adit

Geology: quartz vein 3–4' wide, maximum of 8', with nearly vertical dip in quartz diorite

Name: Irma B

Location: *Sec. 7(?), T.31N., R.5W., MDBM, Shasta Co. (20)

Description: shaft

Geology: quartz vein reported to contain gold

Name: Horstman

Location: *Sec. 9, T.31N., R.5W., MDBM, Shasta Co. (10)

Description: several pits along 100' of vein outcrop

Geology: sulfide-bearing quartz vein strikes S50°W and is nearly vertical

Name: Yankee John

Location: *SW¼ Sec. 17, T.31N., R.5W., MDBM, Shasta Co. (1,7)

Description: 300' shaft; five to ten tons per day mined in 1957; 2.5 oz. Au reported

Geology: NW-trending quartz vein in greenstone near contact with slate

Name: Miner's Dream

Location: *Sec. 18(?), T.31N., R.5W., MDBM, Shasta Co. (20)

Description: several shafts and an adit; 0.58-1.21 oz. Au and to 24.65% Cu reported

Geology: quartz vein to 12' wide strikes N80°E and dips N in greenstone

Name: Jumbo

Location: *Sec. 18, T.31N., R.5W., MDBM, Shasta Co. (7)

Description: pits and shafts

Geology: originally worked for placer gold; numerous quartz stringers in greenstone intruded by quartz diorite dikes

Name: Hall Bros. (*Scharrel*)

Location: *S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 2 and N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 11, T.31N., R.6W., MDBM, Shasta Co. (10)

Description: shaft on 4" quartz stringers; trench exposes "high-grade"; older workings consist of an adit on a 1-2' quartz vein and an adit to vein; 0.69-1.22 oz. Au reported

Geology: quartz veins and stringers in quartz diorite

Name: Ballou (*Manzanita or Falls*)

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 7 and N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 18, T.31N., R.6W., MDBM, Shasta Co. (10,31)

Description: four claims; several adits to 525', and a 50' shaft; worked in 1939

Geology: quartz veins to 5' wide, and a silicified zone 12' wide in quartz diorite; two veins strike N20°E, dip 80°E

Name: Midnight and Crown Point

Location: *Secs. 13 and 24, T.31N., R.6W., MDBM, Shasta Co. (7)

Description: adit to vein at Midnight; 0.63 oz. Au reported; shaft and adit at Crown Point

Geology: 4-5' wide sulfide-bearing quartz vein strikes NW, dips 50°NE in slate; associated with dike in greenstone

Name: Black Hawk

Location: *Sec. 14, T.31N., R.6W., MDBM, Shasta Co. (14)

Description: 400' adit

Geology: vein in meta-andesite

Name: Jim Fisk

Location: *Sec. 15 (except Lots 20, 21, 23, 24, 25), T.31N., R.6W., MDBM, Shasta Co. (7)

Description: several shafts on vein

Geology: 2' quartz vein along a rhyolite(?) dike in quartz diorite

Name: North Star and Elkhorn

Location: *SE $\frac{1}{4}$ Sec. 15 (except Lots 20, 21, 23, 24, 25), T.31N., R.6W., MDBM, Shasta Co. (7,14)

Description: two shafts; active in 1914

Geology: vein in quartz diorite

Name: Silver Falls—Chicago Consolidated (*Chicago*)

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 17 and W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 20, T.31N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Silver)

Name: Diamond (*Black Prince*)

Location: *Sec. 18, T.31N., R.6W., MDBM, Shasta Co. (1,14)

Description: 400' adit on Black Prince vein; active in 1914

Geology: base-metal sulfides in four veins in quartz diorite shoot 100' long by 2' wide in Black Prince vein; 2.5 oz. Au reported

Name: Great Falls and Hope

Location: *W $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 18, T.31N., R.6W., MDBM, Shasta Co. (14)

Description: adit on vein

Geology: four veins, three of which are parallel, in quartz diorite; 80' long by 7' wide shoot

Name: Golden Crown

Location: *Sec. 19, T.31N., R.6W., MDBM, Shasta Co. (14)

Description: worked prior to 1914

Geology: vein 1' wide in quartz diorite

Name: Climax

Location: *NW $\frac{1}{4}$ Sec. 21, T.31N., R.6W., MDBM, Shasta Co. (14,31)

Description: shaft and adit

Geology: auriferous sulfides in quartz vein that strikes N40°E, dips 45°E in quartz diorite

Name: Potosi

Location: *N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 22, T.31N., R.6W., MDBM, Shasta Co. (1,10,14)

Description: shaft; active in early 1930's

Geology: 4–16" quartz vein in quartz diorite; "high grade" reported in 100' shoot

Name: Great Western

Location: *NE $\frac{1}{4}$ Sec. 22(?), T.31N., R.6W., MDBM, Shasta Co. (7)

Description: about 50 tons of 0.73 oz. Au reportedly mined from adits, pits, and trenches

Geology: 18–24" wide, vertical quartz veins strike for 500–600' NE; associated with a fine-grained dacite dike in quartz diorite

Name: Jubilee

Location: *Sec. 23, T.31N., R.6W., MDBM, Shasta Co. (14)

Description: workings on 100' long and 4' wide shoot

Geology: five veins in quartz diorite

Name: Broken Hills

Location: *NW $\frac{1}{4}$ (?) Sec. 23, T.31N., R.6W., MDBM, Shasta Co. (7)

Description: adit intersects two veins; shallow shaft and pits develop one vein for several hundred feet; \$3000 produced from material reported to contain 0.2–0.54 oz. Au

Geology: 2–4' wide sulfide-bearing quartz veins in quartz diorite and greenstone

Name: Jensen Group

Location: *Sec. 24, T.31N., R.6W., MDBM, Shasta Co. (7)

Description: \$2400 mined from incline in 1931; several pits

Geology: small gouge seams carrying auriferous sulfide lenses a few inches long

Name: Bully Choop

Location: *E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 8 and W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 9, T.31N., R.8W., MDBM, Trinity Co. (1,7,14)

Description: adits leading to extensive underground workings on the Bully Choop and Occidental veins; active prior to 1914 and in 1932

Geology: three zones of vertical, auriferous quartz stringers from a few inches to two feet wide in three zones in hornblende schist; shoot 230' long and 6' wide strikes E-W, dips 40°S

Name: Cleveland

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ and NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 9, T.31N., R.8W., MDBM, Trinity Co. (7,14)

Description: four adits develop vein to about 450' depth; 300' shoot worked in 1914

Geology: gold and auriferous sulfides in 2–20' wide (ave. 9') quartz vein that strikes N9°E, dips 60°E in schist

Name: Kit Carson

Location: *Sec. 3, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: adit

Geology: four parallel veins 3' wide strike NE, dip 50°SE; main shoot 200' long and 3' wide

Name: Reid

Location: *Sec. 3, T.32N., R.5W., MDBM, Shasta Co. (7,14)

Description: \$2,500,000 in gold produced; continuous 160 ton-per-day operation, 1907–1919; several thousand tons produced 1923–25; developed by 1000' shaft, adit; 0.20–1.44 oz. Au reported; \$2 per ton credited for silica flux

Geology: 6–30' quartz vein strikes N and dips 70°E in greenstone; main shoot 600' long carries gold and auriferous sulfides

Name: Central

Location: *Secs. 3 and 4, T.32N., R.5W., MDBM, Shasta Co. (14,24)

Description: about \$500,000 produced largely between 1885–95; average reported assay for a six-year period was 0.63 oz. Au; developed from 1340' adit

Geology: two parallel quartz veins about 150' apart strike N, dip 40°E in “quartz porphyry”; shoot 230' long and 6' wide contains gold-bearing sulfides

Name: Walker (*Utah and California*)

Location: *Secs. 3 and 10, T.32N., R.5W., MDBM, Shasta Co. (10,14)

Description: 2300' adit leading to extensive workings; mine reopened in 1936, and 100 tons per day reportedly milled in 1938

Geology: quartz vein associated with rhyolite dikes in greenstone; six veins to 32' wide; main vein strikes N, dips 80°E; others trend NE and dip NW

Name: Slide

Location: *Secs. 7 and 8, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: adit

Geology: gold in quartz vein; shoot 110' long and 2' wide

Name: Consolidated Kascinaska

Location: *Sec. 10, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: several adits

Geology: two parallel quartz veins strike N40°W, dip 50°SW in slate and "quartz porphyry"; shoot 140' long and 4' wide

Name: Black Cloud and Red Top

Location: *Sec. 15, T.32N., R.5W., MDBM, Shasta Co. (20)

Description: shaft on vein; sample from shaft reported to assay 0.14 oz. Au

Geology: 4–6' wide quartz vein in greenstone

Name: Cleveland

Location: *Sec. 15, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: adit

Geology: 15'' wide quartz vein with gold-bearing sulfides strikes NW, dips 60°SW in diorite

Name: Gladiator

Location: *NE¼ Sec. 15, T.32N., R.5W., MDBM, Shasta Co. (7)

Description: 200' shaft

Geology: quartz vein averaging 16'' wide dips steeply in greenstone

Name: Clara

Location: *Sec. 17, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: adit on vein

Geology: three parallel veins in "granite porphyry"; one vein contains a shoot 160' long and 20'' wide

Name: Murray

Location: *Sec. 18, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: adit

Geology: quartz vein about 6' wide strikes N40°E, dips 50°S; shoot 230' long and 6' wide has "quartz porphyry" footwall and syenite hanging wall

Name: Alice

Location: *Sec. 19, T.32N., R.5W., MDBM, Shasta Co.

(14)

Description: adit

Geology: three parallel 3' wide quartz veins strike N60°E, dip 75°S in "granite porphyry"; shoot 80' long and 3' wide

Name: Black Spider (*Jones*)

Location: *Sec. 19, T.32N., R.5W., MDBM, Shasta Co.

(7,14)

Description: 460' shaft, 80' shaft, and adit

Geology: quartz veins from a few inches to four feet wide associated with dikes in quartz diorite; shoot 160' long and 6' wide

Name: Olive

Location: *Sec. 19, T.32N., R.5W., MDBM, Shasta Co.

(14)

Description: shallow workings

Geology: gold in quartz vein with shoot 230' long and 6' wide

Name: W and W

Location: *Sec. 19, T.32N., R.5W., MDBM, Shasta Co.

(20)

Description: shaft and pit on vein

Geology: quartz vein strikes N70°E, dips 65°E; contains gold and sulfides

Name: Inez

Location: *Secs. 19 and 20, T.32N., R.5W., MDBM, Shasta Co.

(14)

Description: adit and several pits

Geology: shoot containing gold near surface, gold-bearing sulfides at depth

Name: Calumet Consolidated

Location: *Sec. 20, T.32N., R.5W., MDBM, Shasta Co.

(7,14)

Description: adit; vein developed to 250' depth

Geology: quartz vein strikes E, dips 15°N in diorite; shoot, over 200' long, averages 20" wide

Name: Compton

Location: *Sec. 20, T.32N., R.5W., MDBM, Shasta Co.

(14)

Description: adit

Geology: quartz vein in "granite porphyry"

Name: Bunker Hill

Location: *Sec. 29, T.32N., R.5W., MDBM, Shasta Co.

(14)

Description: adit

Geology: 5' wide quartz vein strikes N, dips 40°E in "granite porphyry"

Name: Mountain Queen

Location: *Sec. 30, T.32N., R.5W., MDBM, Shasta Co.

(7)

Description: 0.63 oz. Au reported from shaft on vein, 1.44 oz. Au reported from shaft on narrower vein

Geology: two near-vertical veins in quartz diorite; 4–5' wide vein strikes N65°W; narrower vein strikes N70°E

Name: Old Spanish

Location: *Sec. 31, T.32N., R.5W., MDBM, Shasta Co. (7,14)

Description: adit

Geology: 5' wide quartz vein strikes N, dips 45°E near contact of quartz diorite and greenstone; shoot 140' long and 5' wide; gold-bearing sulfides within 10' of surface

Name: Corrine

Location: *Sec. 32, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: four adits and a shaft

Geology: two parallel veins strike NE, dip vertically; shoot 200' long and 15" wide

Name: Eureka Tellurium

Location: *Sec. 32, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: several adits

Geology: 3' quartz vein strikes N25°E, dips 60°E in slate; shoot 130' long and 3' wide

Name: Mount Pleasant

Location: *Sec. 32, T.32N., R.5W., MDBM, Shasta Co. (14)

Description: adit

Geology: quartz vein strikes NW, dips 45°NE; shoot 140' long and 3' wide

Name: Minneshasta (*Brackett*)

Location: *Sec. 33, T.32N., R.5W., MDBM, Shasta Co. (20)

Description: three adits

Geology: auriferous sulfides in 6–7' wide quartz vein that strikes N and is nearly vertical

Name: Minnesota

Location: *Secs. 1 and 2, T.32N., R.6W., MDBM, Shasta Co. (14)

Description: adit

Geology: quartz vein strikes N40°E, dips 35°W with diorite footwall and “granite porphyry” hanging wall

Name: Ganim

Location: *Secs. 5 and 8, T.32N., R.6W., MDBM, Shasta Co. (7)

Description: adit to vein; 0.40–0.44 oz. Au reported

Geology: auriferous sulfides and copper carbonate in vertical quartz vein 3–4' wide in greenstone

Name: Bonanza

Location: *Sec. 6, T.32N., R.6W., MDBM, Shasta Co. (14)

Description: three adits

Geology: quartz vein strikes N, dips 50°E with slate footwall and "granite porphyry" hanging wall; two other parallel veins

Name: East View (*Winnie*)

Location: *Sec. 6, T.32N., R.6W., MDBM, Shasta Co.

(7)

Description: two adits

Geology: 1–24" wide quartz vein in greenstone intruded by quartz diorite dikes

Name: Index

Location: *Sec. 6, T.32N., R.6W., MDBM, Shasta Co.

(24)

Description: two adits and several pits

Geology: series of parallel E-striking, N-dipping quartz veins in alaskite porphyry in greenstone

Name: Betty May

Location: *Sec. 8, T.32N., R.6W., MDBM, Shasta Co.

(7)

Description: 135' incline

Geology: gold in 12" wide quartz veins

Name: Desmond

Location: *Sec. 9, T.32N., R.6W., MDBM, Shasta Co.

(1,10)

Description: 135' incline and adit on vein; 0.57 oz. Au reported

Geology: 4–5' wide lode strikes N50°E, dips 50–63°E in albite granite

Name: Mad Dog

Location: *Sec. 10, T.32N., R.6W., MDBM, Shasta Co.

(7)

Description: adit

Geology: gold-bearing quartz veins average about 1' wide in shear zone 45' wide in silicified rhyolite

Name: Eiller

Location: *NW¼ Sec. 11, T.32N., R.6W., MDBM, Shasta Co.

(10)

Description: three adits

Geology: quartz veins from a few inches to eleven feet wide in quartz diorite

Name: Benson

Location: *Sec. 12, T.32N., R.6W., MDBM, Shasta Co.

(7)

Description: adit on vein and adit to vein

Geology: 3' wide brecciated quartz vein dips 70°N near contact of quartz diorite with greenstone

Name: Blue Danube

Location: *Sec. 12, T.32N., R.6W., MDBM, Shasta Co.

(7)

Description: shallow workings; to 0.28 oz. Au reported

Geology: quartz veins to 3' wide in quartz diorite and associated with alaskite porphyry

Name: Sunshine (*Kanaka*)

Location: *SE $\frac{1}{4}$ Sec. 15, T.32N., R.6W., MDBM, Shasta Co. (7)

Description: adit to vein

Geology: quartz veins with auriferous sulfides near contact of quartz diorite with greenstone; veins average 14" wide (maximum 5')

Name: Phoenix

Location: *Secs. 15 and 16, T.32N., R.6W., MDBM, Shasta Co. (10)

Description: 700–800' adit on main vein, pit; active in late 1880's; main vein assayed 0.2 oz. Au

Geology: 14' quartz vein strikes E, dips 65°N; reportedly traced for 1500'; 3' wide split off main vein strikes N35°W

Name: Gambrinus

Location: *Sec. 16, T.32N., R.6W., MDBM, Shasta Co. (14)

Description: several adits; 410' main adit on vein

Geology: four parallel veins strike N50°W, dip 45°N in greenstone and "quartz porphyry"; main shoot 220' long and 18" wide

Name: West End

Location: *Sec. 16, T.32N., R.6W., MDBM, Shasta Co. (24)

Description: 100' shaft

Geology: gold and auriferous sulfides in two quartz veins in porphyritic rhyolite; West End vein strikes N50°W, dips 70°N; Spanish vein strikes N27°E, dips 80°W, vein widths vary from a few inches to two feet

Name: Australia

Location: *Secs. 19 and 30, T.32N., R.6W., MDBM, Shasta Co. (14)

Description: three adits on veins, longest is 340'

Geology: three veins, two are parallel, strike E, dip 60°N in greenstone and "granite porphyry"; shoot 60' long and 4' wide

Name: Shasta View

Location: *Secs. 26, 27, 34, and 35, T.32N., R.6W., MDBM, Shasta Co. (7,14)

Description: adit and shallow workings

Geology: gold and auriferous sulfides in quartz lenses a few inches to one foot wide along shear zone in rhyolitic dike intruding quartz diorite

Name: Happy Jack

Location: *Secs. 28, 32, and 33, T.32N., R.6W., MDBM, Shasta Co. (20)

Description: shallow workings

Geology: gold and auriferous sulfides in vertical 4' wide quartz vein that strikes NW in greenstone

Name: Gladys

Location: *Sec. 34, T.32N., R.6W., MDBM, Shasta Co. (7)

Description: 150' shaft and 75' shaft with a short adit

Geology: two parallel veins about 75' apart in quartz porphyry strike N55°E, dip steeply; main vein 4' wide carried gold-bearing sulfides

Name: Mount Shasta

Location: *Sec. 34, T.32N., R.6W., MDBM, Shasta Co. (7)

Description: \$178,000 recorded production from 658' shaft

Geology: sulfides and gold in two parallel 4–5' wide quartz veins 50' apart in sheared rhyolite

Name: Oro Fino

Location: *Sec. 34, T.32N., R.6W., MDBM, Shasta Co. (14)

Description: three adits to 700' long on the vein

Geology: two parallel quartz veins strike E, dip 60°S; shoot 200' long and 2' wide

Name: Oro Vista

Location: *Sec. 36, T.32N., R.6W., MDBM, Shasta Co. (14)

Description: adit

Geology: three parallel veins strike E, dip 85°N; shoot 170' long and 4' wide

Name: Merry Mountain

Location: *W $\frac{1}{2}$ Sec. 1 and Sec. 2, T.32N., R.7W., MDBM, Shasta Co. (10)

Description: open cut

Geology: quartz stringers and rhyolite dikes in greenstone

Name: El Dorado

Location: *NE $\frac{1}{4}$ Sec. 3, T.32N., R.7W., MDBM, Shasta Co. (24)

Description: \$4000 in gold mined from 450' adit on vein

Geology: gold and auriferous sulfides in 3' wide quartz vein along fault which strikes N20°W, dips 35°E in slate and greenstone

Name: Bodie

Locations: *Sec. 6, T.32N., R.7W., and Sec. 32, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: adit and shaft

Geology: vein with granodiorite footwall and "granite porphyry" hanging wall; shoot 250' long and 2' wide

Name: Greenhorn

Location: *NE $\frac{1}{4}$ Sec. 6, T.32N., R.7W., MDBM, Shasta Co.

(See under METALLICS, Copper)

Name: Hope

Location: *Sec. 8, T.32N., R.7W., MDBM, Shasta Co. (14)

Description: 480' adit and 140' incline

Geology: shoot 100' long and 1' wide in "slate"

Location: NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 31, T.32N., R.8W., MDBM, Trinity Co. (1)

Description: shallow pits and short adits

Geology: gold in quartz veins a few inches to two feet wide in quartz-mica schist

Conclusions: shows little promise

Name: Rainbow

Location: *Sec. 32, T.32N., R.8W., MDBM, Trinity Co. (11,24)

Description: adits and trenches; overburden hydraulicked

Geology: 3' wide quartz vein strikes NW and dips gently E in serpentinite and diorite porphyry; vein crops out at intervals for 500'

Name: Phillips (*Laurel, Buck*)

Location: *Sec. 14, T.32N., R.9W., MDBM, Trinity Co. (7)

Description: three adits

Geology: 6-9" wide, vertical quartz vein strikes NW in schist

Name: Oriole

Location: *Sec. 22, T.32N., R.9W., MDBM, Trinity Co. (14)

Description: adit

Geology: shoot 1' wide

Name: Dawn of Hope and Dutch Creek

Location: *Sec. 6, T.32N., R.10W., MDBM, Trinity Co. (11)

Description: a 40' and a 150' adit to vein at Dutch Creek; Dutch Creek vein assayed 0.12 oz. Au

Geology: Dawn of Hope vein is 6-18" wide, strikes SE, dips 45-60°NE, and is exposed for strike length of 500'

Location: E $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 35, T.32N., R.10W., MDBM, Trinity Co. (1)

Description: short adits and trench (1956); no workings below 20' depth

Geology: brecciated quartz veins 6-18" wide crop out at intervals for at least 1000' along N-trending fault zone in gabbro; veins are steeply dipping to vertical; gold-bearing lode mined in 1956, was in a 10-20' gouge-breccia zone

Conclusions: warrants further exploration

Name: Old Indian

Location: *E $\frac{1}{2}$ Sec. 4, T.33N., R.2W., MDBM, Shasta Co. (2)

Description: short adits and several pits

Geology: three gold-bearing quartz veins 1-3' wide in rhyolite; minor amounts of sulfides noted on dumps

Name: Cook

Location: *Sec. 10, T.33N., R.2W., MDBM, Shasta Co. (2)

Description: short adits and shallow pits

Geology: gold-bearing quartz veins to 3' wide and a few feet to a few hundred feet long in quartz keratophyre

Name: Cortez

Location: *Sec. 10, T.33N., R.2W., MDBM, Shasta Co.

(14)

Description: three short adits

Geology: two parallel quartz veins about 40' apart in rhyolite and shale

Name: Afterthought

Location: *Secs. 10 and 11, T.33N., R.2W., MDBM, Shasta Co.

(See under METALLICS, Zinc)

Name: Uncle Sam

Location: *Sec. 6, T.33N., R.5W., and Sec. 1, T.33N., R.6W., MDBM, Shasta Co.

(1,14)

Description: produced about \$1,000,000 in gold since 1886; vein worked to a depth of 450', developed by five adits to 3000' long; diamond drilled 1936-37

Geology: 4' wide quartz vein strikes N80°W, dips 55°N in rhyolite; other quartz veins north of workings

Location: NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 21, T.33N., R.5W., MDBM, Shasta Co.

(1)

Description: shallow shafts and adits; selected sample assayed 0.08 oz. Au and a trace of Ag

Geology: 1-3' quartz vein strikes N65°E, dips 65°S in greenstone

Conclusions: shows little promise

Name: Lyons

Location: *Sec. 22, T.33N., R.5W., MDBM, Shasta Co.

(7)

Description: adit

Geology: quartz vein in greenstone

Name: Gold Bar

Location: *Secs. 22 and 26, T.33N., R.5W., MDBM, Shasta Co.

(24)

Description: three adits on vein

Geology: quartz vein strikes N30°W, dips 55°W in greenstone; shoot 80' long and 4' wide

Name: National

Location: *Sec. 23, T.33N., R.5W., MDBM, Shasta Co.

(10)

Description: \$200,000 in gold produced since 1869; active 1934; adit and shaft

Geology: gold-bearing quartz vein in greenstone

Name: Liberty

Location: *SW $\frac{1}{4}$ Sec. 31, T.33N., R.5W., and Sec. 36, T.33N., R.6W., MDBM, Shasta Co.

(14)

Description: adit, 250' shaft and short drifts

Geology: shoot 220' long and 2' wide strikes E, dips 65°N in "quartz porphyry"

Name: Scottish Chief

Location: *SW $\frac{1}{4}$ Sec. 31, T.33N., R.5W., MDBM, Shasta Co. (10)

Description: active during late 1800's and in 1934; several adits and 80' shaft

Geology: quartz vein to 8' wide strikes N85°W for 1000', dips 60-70°S along mafic dike in granite

Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.33N., R.5W., MDBM, Shasta Co. (1)

Description: adit and two shafts; selected sample from 4" vein width assayed 0.30 oz. Au and 0.70 oz. Ag; 2-4" vein width assayed 0.18 oz. Au and 0.22 oz. Ag

Geology: 2-4" quartz vein strikes E, dips steeply N in greenstone

Conclusions: shows limited promise

Location: *NE $\frac{1}{4}$ and SW $\frac{1}{4}$ Sec. 31, T.33N., R.5W., MDBM, Shasta Co. (1)

Description: shafts and adits

Geology: quartz stringers in greenstone

Name: Texas Consolidated

Location: *Secs. 32 and 33, T.33N., R.5W., MDBM, Shasta Co. (14)

Description: adit

Geology: quartz vein strikes N50°E, dips 70°E in "quartz porphyry"; shoot 340' long and 4' wide

Name: Garfield

Location: *Sec. 34, T.33N., R.5W., MDBM, Shasta Co. (14)

Description: adit

Geology: quartz vein strikes N50°E, dips 40°S; shoot 90' long and 2' wide in "quartz porphyry"

Name: Sam Houston

Location: *Sec. 34, T.33N., R.5W., MDBM, Shasta Co. (14)

Description: shallow workings

Geology: three veins in "quartz porphyry"

Name: Carnegie

Location: *Sec. 1, T.33N., R.6W., MDBM, Shasta Co. (14)

Description: 230' shaft and 460' adit on vein

Geology: gold-bearing quartz vein to 2.5' wide strikes E, dips 45°N

Name: Morton and Bliss

Location: *Sec. 1, T.33N., R.6W., MDBM, Shasta Co. (14)

Description: two adits

Geology: two parallel veins 3' wide strike NE, dip 40°SE; shoot 200' long and 3' wide

Name: Bjork

Location: *Sec. 6, T.33N., R.6W., MDBM, Shasta Co.

(10)

Description: 80' shaft; adit intersects shaft 400' below collar

Geology: 3' quartz vein in shaft strikes E, dips 45°S; gold-bearing quartz vein to 18'' wide in adit strikes N30°E, dips 45°W; greenstone wallrock

Name: Gladstone

Location: *S₂S₂ Sec. 7 and Sec. 18, T.33N., R.6W., MDBM, Shasta Co.

(10,14)

Description: \$3,000,000 production since 1901 from vein worked to 2400' depth via adits

Geology: two vertical veins 3' wide strike E in slate

Location: SW₄NW₄ Sec. 7, T.33N., R.6W., MDBM, Shasta Co.

(1)

Description: two adits; selected sample of quartz from dump assayed a trace of Au and 0.20 oz. Ag

Geology: quartz vein in shale

Conclusions: shows little promise

Name: Balaklala

Location: *Secs. 11, 12, 13, and 14, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Shasta King

Location: *W₂ Sec. 12, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Keystone

Location: *NE₄ Sec. 14, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Stowell

Location: *Secs. 14 and 23, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Little Nellie

Location: *Sec. 27 and NW₄NW₄(?) Sec. 35, T.33N., R.6W., MDBM, Shasta Co.

(1,24)

Description: produced \$160,000 in gold from underground workings; copper values mined later

Geology: three parallel quartz veins 2-4' wide strike N60°E, dip 70°NW in greenstone

Name: Mad Ox

Location: *Sec. 28, T.33N., R.6W., MDBM, Shasta Co.

(1,14)

Description: five adits including one long adit to vein; worked to 150' depth

Geology: quartz vein to 5' wide strikes N30-45°E, dips 80°E in rhyolite; shoot 100' long and 14'' wide

Name: Whiskey Hill

Location: *Sec. 28, T.33N., R.6W., MDBM, Shasta Co. (1)

Description: adit; active 1950's

Geology: 2–3' wide quartz vein strikes N45°E

Name: Bright Star (*Iron Mask*)

Location: *Secs. 30 and 31, T.33N., R.6W., MDBM, Shasta Co. (14)

Description: 900' adit on vein

Geology: vein strikes N, dips 60°E; shoot reportedly 200' long and 16'' wide with slate footwall and “granite porphyry” hanging wall

Name: Mad Mule (*Banghart*)

Location: *Sec. 31, T.33N., R.6W., MDBM, Shasta Co. (7)

Description: eight miles of drifts; total production about \$1,000,000

Geology: gold localized along contact of 150' wide diorite porphyry dike with slate

Name: Nellie and Annie

Location: *W $\frac{1}{2}$ Sec. 1 and Sec. 2, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: adit

Geology: E-trending vein dips 60°S with slate footwall and rhyolite porphyry hanging wall

Name: Sybil

Location: *Sec. 7, T.33N., R.7W., MDBM, Shasta Co. (7,10)

Description: mined from several adit levels with vertical range of 200' and a 150' winze below lowest adit level; 1–17 oz. Au reported

Geology: gold-bearing sulfides and gold in steeply dipping quartz veins that trend NE; best values near slate hanging wall; diorite porphyry dikes intrude slate

Location: E $\frac{1}{2}$ E $\frac{1}{2}$ SW $\frac{1}{4}$ and SE $\frac{1}{4}$ Sec. 9, T.33N., R.7W., MDBM, Shasta Co. (1)

Description: pits and short adits; 43 tons of 0.12 oz. Au shipped in 1917 from NE $\frac{1}{4}$ SE $\frac{1}{4}$

Geology: landslide material contains gold-bearing quartz “bunches” in shale

Conclusions: shows little promise

Name: North Star

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 9, T.33N., R.7W., MDBM, Shasta Co. (7)

Description: two adits, one giving access to 90' drift

Geology: 1' wide quartz vein in diorite dike which intrudes slate

Name: Highland

Location: *NE $\frac{1}{4}$ Sec. 9 and Sec. 10, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: \$100,000 produced from a 400' incline and several adits; main adit follows vein for 1800'

Geology: quartz vein strikes N, dips 20°E with slate footwall and “quartz porphyry” hanging wall; shoot 250' long and 3' wide

Name: American

Location: *Secs. 12 and 13, T.33N., R.7W., MDBM, Shasta Co. (14,24)

Description: estimated production of \$300,000 since 1886; developed by four adits to 650' depth; one shoot, 125' long and 2' wide was stoped to height of 240'

Geology: vein strikes N63–80°E, dips from 75°S to vertically in slate

Name: J.I.C.

Location: *Sec. 13, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: adit and 220' incline

Geology: 2' quartz vein strikes NE, dips 68°NW in slate

Name: Three Sisters

Location: *Sec. 15, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: adit; major activity prior to 1905

Geology: three veins in "granite porphyry"; shoot 200' long and 18" wide

Name: Milkmaid and Franklin

Location: *Sec. 16, T.33N., R.7W., MDBM, Shasta Co. (24)

Description: total production of \$2,500,000 1852–1922; mine reopened in early 1930's; Franklin developed by two adit levels, one 105' above the other; Milkmaid developed by several adits and an incline; 0.96–2.2 oz. Au reported from main vein

Geology: two veins at Franklin, one strikes N5–30°W with steep E dip, the other strikes E, dips 70°N; veins are in slate and "soda granite porphyry," with best values in "porphyry"; Milkmaid vein strikes N10°W, dips 80°E in slate intruded by diorite and "soda granite porphyry"; vein a few inches to four feet wide carries gold-bearing sulfides in quartz and calcite gangue; best values in the "porphyry" near slate contact

Name: Washington

Location: *Secs. 16 and 17, T.33N., R.7W., MDBM, Shasta Co. (10,24)

Description: reported production since 1852 of more than \$1,000,000 from six adits to 900' depth

Geology: two roughly parallel, nearly vertical veins strike N70–80°E; the higher-grade vein is in greenstone, other vein in slate and meta-andesite; a subsidiary vein strikes N; quartz contains auriferous sulfides and gold

Name: Halycon

Location: *Sec. 17, R.33N., R.7W., MDBM, Shasta Co. (7)

Description: quartz stringers worked to depths of 50–75'; 0.38–0.58 oz. Au reported; 15–18 tons per day milled in 1932

Geology: gold-bearing quartz stringers generally less than 1" wide in altered diorite porphyry near contact with slate

Name: Hoboe

Location: *Sec. 17, T.33N., R.7W., MDBM, Shasta Co. (7)

Description: adits

Geology: vertical, 2' wide quartz vein in slate

Name: New York and Skylark

Location: *Sec. 17, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: 340' adit on vein

Geology: two parallel veins about 200' apart strike E, dip 60°N in slate; one vein to 5' wide

Name: Philadelphia and Roosevelt (*St. Jude*)

Location: *Sec. 17, T.33N., R.7W., MDBM, Shasta Co. (7,10)

Description: adit to vein; reported production of about 50 tons of 3 oz. Au per month

Geology: six-inch to four-foot vein strikes E, dips 60°N in diorite porphyry near slate contact; vein splits to the W; 15–30 ton shoots, one of which was 120' long

Name: Niagara

Location: *Secs. 17 and 18, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: over \$1,000,000 reported production from six adits that developed veins to 500' depth

Geology: two veins strike NE, dip 70°NW in “granite porphyry” and slate

Name: Tom Green

Location: *Secs. 17 and 18, T.33N., R.7W., MDBM, Shasta Co. (10,14)

Description: production from several adit levels 1890–1914; in 1937, new adit level driven 280' below lowest old level

Geology: vein strikes N, dips 45°E with “granite porphyry” footwall and slate hanging wall; shoot 210' long and 2' wide

Name: Summit and Montezuma

Location: *Secs. 18 and 19, T.33N., R.7W., MDBM, Shasta Co. (7,10)

Description: several adits; 35–55 tons per day milled in late 1930's

Geology: 2' quartz vein strikes N25°E, dips 60°E in slate intruded by dikes

Name: Brunswick

Location: *Secs. 19 and 20, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: \$100,000 reportedly produced from pits and five adits

Geology: vein with “quartz porphyry” footwall and slate hanging wall strikes E, dips 60°N; shoot 250' long and 6' wide

Name: Double Header

Location: *N½ Sec. 33, T.33N., R.7W., MDBM, Shasta Co. (7)

Description: surface workings and 520' adit on vein; active 1888

Geology: lode at slate-greenstone contact; vein from a few inches to five feet wide trends NNE, dips 45°E

Location: S½SW¼ Sec. 33, T.33N., R.7W., MDBM, Shasta Co. (1)

Description: short adits and shallow pits

Geology: quartz vein strikes N80°E, dips 45°N; a second 2–3' quartz vein strikes N25°W; sample of quartz 6" wide assayed to 0.3 oz. Au; veins are near slate-greenstone contact

Conclusions: shows limited promise

Name: Truscott

Location: *Sec. 36, T.33N., R.7W., MDBM, Shasta Co. (14)

Description: four adits on vein

Geology: quartz vein strikes N20°E, dips 70°W in slate intruded by andesite porphyry

Name: Blue Jay

Location: *Sec. 2, T.33N., R.8W., MDBM, Trinity Co. (11)

Description: adit; five tons shipped in 1936

Geology: 3–4" quartz vein strikes NE, dips steeply NW along contact of greenstone with diorite porphyry

Name: Last Chance

Location: *Sec. 2, T.33N., R.8W., MDBM, Trinity Co. (14)

Description: adit; reportedly produced \$20,000

Geology: quartz vein in slate

Name: Paymaster

Location: *Sec. 2, T.33N., R.8W., MDBM, Trinity Co. (7,11)

Description: several hundred feet of drifts on quartz veins; active 1939

Geology: quartz veins in greenstone and along contact of greenstone with diorite porphyry

Name: Venecia

Location: *SE $\frac{1}{4}$ Sec. 3, T.33N., R.8W., MDBM, Trinity Co. (1,7,11,14)

Description: \$500,000 reportedly produced from three adits to 200' vein depth; active 1930's

Geology: gold and auriferous sulfides in quartz veins from a few inches to five feet wide; one vein strikes N30°E, dips steeply W in greenstone, "granite porphyry," and slate

Location: *N $\frac{1}{2}$ Sec. 5, T.33N., R.8W., MDBM, Trinity Co. (1)

Description: 75' shaft, adit, and pit

Geology: steeply-dipping quartz vein strikes E

Location: S $\frac{1}{2}$ SE $\frac{1}{4}$ and SW $\frac{1}{4}$ Sec. 7, T.33N., R.8W., MDBM, Trinity Co. (1)

Description: shallow pits

Geology: narrow quartz veins in slate near contact with greenstone

Conclusions: shows little promise

Location: SE $\frac{1}{4}$ Sec. 9, T.33N., R.8W., MDBM, Trinity Co. (1)

Description: short adit and shallow pits

Geology: quartz veins to 1' wide in slate

Conclusions: shows little promise

Name: Henry Clay

Location: *Sec. 11, T.33N., R.8W., MDBM, Trinity Co. (11)

Description: two adits

Geology: 4' quartz vein in diorite porphyry intruding slate

Name: Lary

Location: *Sec. 11, T.33N., R.8W., MDBM, Trinity Co. (11)

Description: two adits

Geology: gold-bearing quartz stringers a few inches wide associated with dikes intruding slate

Name: Starvation

Location: *Sec. 11, T.33N., R.8W., MDBM, Trinity Co. (11)

Description: two adits on stringer

Geology: 3-4" quartz stringer in diorite porphyry and "granite porphyry"

Name: Triangle

Location: *Sec. 11, T.33N., R.8W., MDBM, Trinity Co. (14)

Description: \$15,000 reportedly produced from 40' by 60' by 3' stope via adit

Geology: quartz vein in slate

Name: Brown Bear

Location: *Secs. 11, 12, 13 and 14, T.33N., R.8W., MDBM, Trinity Co. (11)

Description: reported production of \$8,000,000-10,000,000 in gold; three separate shoots reported to have yielded more than \$1,000,000 each; two veins, the Monte Christo and the Last Chance, reported 0.96-5.0 oz. Au, and were mined for a strike length of 2600' and to a 760' depth; the Watt adit is 350' below the lowest level of older workings

Geology: gold and 1-4% auriferous sulfides reported in several steeply dipping quartz veins with general E strike in slate intruded by diorite porphyry dikes; veins can be traced for 1000-3000' and attain widths to 20'

Name: Lila

Location: *Sec. 12, T.33N., R.8W., MDBM, Trinity Co. (7)

Description: adits

Geology: quartz veins reported to carry gold and pyrite dip steeply in diorite porphyry intruding slate

Name: Ray

Location: *Sec. 12, T.33N., R.8W., MDBM, Trinity Co. (14)

Description: adit

Geology: quartz vein in slate

Name: Amy Balch

Location: *Sec. 13, T.33N., R.8W., MDBM, Trinity Co. (11)

Description: \$35,000 reportedly produced from underground workings prior to 1913; adits driven in 1939 encountered quartz vein; 0.2 oz. Au reported

Geology: quartz veins at and near contact of slate with diorite porphyry; veins in older workings averaged about 2' wide

Name: Calmich (*Lapman*)

Location: *Sec. 13, T.33N., R.8W., MDBM, Trinity Co. (3,14)

Description: three adits; 3.0 oz. Au reported

Geology: quartz vein averages 6" wide with slate footwall and "quartz porphyry" hanging wall

Name: Star of the East

Location: *Sec. 13, T.33N., R.8W., MDBM, Trinity Co. (14)

Description: 310' adit and several hundred feet of drifts

Geology: quartz vein in "quartz porphyry"

Name: Bateman and Mauldin

Location: *Secs. 14 and 15, T.33N., R.8W., MDBM, Trinity Co. (11)

Description: two adits

Geology: brecciated quartz vein with much gouge in slate; vein widths to 18"

Name: Dixie Queen

Location: *Sec. 14 and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 23, T.33N., R.9W., MDBM, Trinity Co. (7)

Description: adit on vein; production reported \$5000 in gold, silver, lead and zinc; \$20.00 per ton reported from shoot; worked in 1930's

Geology: shoot 120' long by 40' high in 8" wide vein in quartz diorite

Name: Democrat

Location: *Secs. 12 and 13, T.33N., R.10W., MDBM, Trinity Co. (7)

Description: 340' adit and a 160' adit

Geology: quartz vein strikes N35°E, dips 45°W in schist; 14' of pyrite and quartz exposed in lower adit

Name: Arndt-Haschke

Location: *Secs. 33 and 34, T.34N., R.2W., MDBM, Shasta Co. (10)

Description: adit

Geology: gold-bearing gossan in slate

Name: Bully Hill and Rising Star

Location: *Secs. 15, 16, 21, and 22, T.34N., R.3W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Location: *Sec. 24, T.34N., R.4W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Golinsky

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 28, T.34N., R.5W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Sutro (*Stauffer*)

Location: *NW $\frac{1}{4}$ Sec. 29 and NE $\frac{1}{4}$ Sec. 30, T.34N., R.5W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Mammoth

Location: *Sec. 32, T.34N., R.5W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Early Bird

Location: *SW $\frac{1}{4}$ Sec. 11, T.34N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Location: SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 27, T.34N., R.6W., MDBM, Shasta Co. (1,7)

Description: several adits reportedly yielded \$5000 from irregular pockets

Geology: quartz veins to 8' wide strike SE in greenstone

Conclusions: shows limited promise

Name: Clipper

Location: *Sec. 36, T.34N., R.6W., MDBM, Shasta Co. (7,14)

Description: 230' shaft and 460' adit on vein; about 0.5 oz. Au reported

Geology: quartz veins a few inches to six feet wide strike E in porphyritic rhyolite

Name: Venicia

Location: *Sec. 3, T.34N., R.8W., MDBM, Trinity Co. (20)

Description: production of \$500,000 reported from three adits; vein mined to 200' depth

Geology: vein strikes NW, dips 10°SW in slate; shoot 250' long and 2' wide

Name: White Cloud

Location: *Sec. 5, T.34N., R.8W., MDBM, Trinity Co. (19)

Description: adit; one shoot with reported yield of \$2500 in 1912

Geology: quartz vein in "quartz porphyry"

Name: Fairview

Location: *Sec. 10 and W $\frac{1}{2}$ Sec. 11, T.34N., R.8W., MDBM, Trinity Co. (7)

Description: \$200,000 reportedly produced from several adits; 0.34-1.45 oz. Au reported

Geology: gold-bearing quartz vein strikes E, dips steeply N in slate

Location: Sec. 13(?), T.34N., R.8W., MDBM, Trinity Co. (1,20)

Description: adit; selected sample assayed 0.72 oz. Au

Geology: gold-bearing quartz vein in slate

Conclusions: shows limited promise

Name: May Blossom

Location: *Sec. 16, T.34N., R.8W., MDBM, Trinity Co. (20)

Description: adit

Geology: 6' wide gold-bearing quartz vein strikes NW, dips steeply; crops out for 100'

Name: Trinity Mohawk

Location: *Sec. 26, T.34N., R.8W., MDBM, Trinity Co. (7)

Description: three adits develop vein to 70' depth

Geology: 5' wide gold-bearing quartz vein with flat dip to N in slate near porphyry dike

Name: Arbuckle

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ and SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 7, T.34N., R.9W., MDBM, Trinity Co. (1)

Description: several adits and pits

Geology: limonite in four quartz veins to 200' long in faulted gneissic amphibolite; veins attain a maximum width of 2', strike from N80°W to N70°E, and dip steeply N

Name: Little Alice and R. A. M.

Location: *S $\frac{1}{2}$ Sec. 13, T.34N., R.9W., MDBM, Trinity Co. (7)

Description: adit and 40' trench; 0.58 oz. Au reported

Geology: gold-bearing quartz seams and "bunches" in limonitic shale

Name: Mekel-Fields

Location: *W $\frac{1}{2}$ Sec. 15, T.34N., R.10W., MDBM, Trinity Co. (1,11)

Description: several adits; 1.79 oz. Au reported from one adit

Geology: auriferous pyrite in vertical to steeply dipping quartz veins 2-18" wide that strike N85°W to N70°E in faulted gneissic amphibolite

Name: Patillo

Location: *E $\frac{1}{2}$ Sec. 16, T.34N., R.10W., MDBM, Trinity Co. (1,11)

Description: 400 tons of 0.86 oz. Au reportedly mined from adits

Geology: auriferous pyrite in quartz veins in gneissic amphibolite

Name: Delta Consolidated

Location: *Sec. 6, T.35N., R.5W., MDBM, Shasta Co. (14)

Description: mined to maximum depth of 300'

Geology: ten quartz veins in andesite; principal lodes strike N70°E, are vertical, and crop out for several thousand feet; shoot 800' long and 18" wide

Name: McKinnon

Location: *Sec. 6, T.35N., R.5W., MDBM, Shasta Co. (14)

Description: three adits

Geology: 2' wide vein strikes E, dips 70°N in granodiorite; shoot 160' long

Location: *Secs. 26 and 35, T.35N., R.5W., MDBM, Shasta Co. (1)

Description: pit; 2 oz. Au reported

Geology: shattered quartz vein in shale

Location: *Sec. 4, T.35N., R.6W., MDBM, Shasta Co. (10)

Description: shallow underground workings and seven pits

Geology: quartz veins in slate and andesite intruded by porphyritic andesite dike

Location: *SE $\frac{1}{4}$ Sec. 19, T.35N., R.7W., MDBM, Trinity Co. (7)

Description: \$350,000–400,000 reported from 450' adit and workings to 300' depth; 0.19–0.34 oz. Au reported from vein in greenstone

Geology: main vein strikes E, dips steeply N; best values mined from shoots with flat rake adjacent slate-greenstone contact

Location: *Secs. 18 and 22, T.36N., R.9W., MDBM, Trinity Co. (1)

Description: shallow workings

Geology: gold-bearing quartz veins associated with dikes of diorite porphyry, alaskite or rhyolite in mica schist in Sec. 18 and in biotite-quartz diorite in Sec. 22

Location: SW $\frac{1}{4}$ Sec. 21, T.36N., R.9W., MDBM, Trinity Co. (1)

Description: numerous pits

Geology: gold-bearing quartz veins associated with diorite porphyry and rhyolite dikes in ultramafic rocks

Conclusions: shows little promise

Name: Highland

Location: *N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 12, T.37N., R.6W., MDBM, Trinity and Shasta Counties (1)

Description: shaft

Geology: gold reportedly produced from N-trending, vertical shear zone in serpentinized peridotite; subsidiary shear zone strikes E, dips 20°N

Location: SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.37N., R.7W., MDBM, Trinity Co. (1)

Description: adit and pit

Geology: quartz veins in peridotite and other intrusive rocks

Conclusions: shows little promise

Name: Lost Horse (*Ruggles*)

Location: *NW $\frac{1}{4}$ Sec. 4, T.37N., R.7W., MDBM, Trinity Co. (1)

Description: adits

Geology: quartz vein strikes N15°W, dips 70°W in gabbro

Name: Forget-Me-Not

Location: *Secs. 8 and W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 9, T.37N., R.7W., Trinity Co. (1)

Description: adit and 100' shaft

Geology: shoot 100' long and 2' wide strikes N40°E, dips 20°S with diorite footwall and "quartz porphyry" hanging wall

Name: Strobe (*Oro Grande*)

Location: *SE $\frac{1}{4}$ Sec. 8 and SW $\frac{1}{4}$ Sec. 9, T.37N., R.7W., MDBM, Trinity Co. (14)

Description: adit leading to workings 400' below vein outcrop

Geology: shoot 120' long and 3' wide strikes NW, dips 40°NE; andesite footwall and "quartz porphyry" hanging wall

Name: Nonpareil

Location: *W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 9, T.37N., R.7W., MDBM, Trinity Co. (14)

Description: reported production of \$20,000 from adit

Geology: localized "high grade" gold in two parallel veins that strike N40°E, dip 40°E; shoot 110' long and 2' wide

Name: Trinity Bonanza King (*United Trinity*)

Location: *mining claims in Secs. 12, 13, and 14, T.37N., R.7W., MDBM, Trinity Co. (1,24)

Description: adits; worked in 1890's; reported production of \$1,250,000 in gold, 1904-07; two shoots reportedly yielded \$85,000 and \$240,000

Geology: gold-bearing pyrite along NW-trending shear zones in gabbro and diorite

Name: Blue Jacket

Location: *W $\frac{1}{2}$ Sec. 17 and Sec. 18, T.37N., R.7W., MDBM, Trinity Co. (1)

Description: adit leading to workings 320' below vein outcrop

Geology: shoot 200' long and 5' wide with serpentinite footwall and "quartz porphyry" hanging wall; vein strikes N40°E, dips 40°SE

Name: True Blue

Location: *Sec. 20, T.37N., R.7W., MDBM, Trinity Co. (1)

Description: adit; active 1911

Geology: gold lode, 80' long and 12" wide with slate footwall, diorite hanging wall

Name: Headlight

Location: *NW $\frac{1}{4}$ Sec. 21, T.37N., R.7W., MDBM, Trinity Co. (6,14,24,26)

Description: reported production of \$500,000 in 0.3 oz. Au prior to 1913 from series of glory holes

Geology: nearly horizontal, 40' wide, gossan-capped, quartz-pyrite lode along contact of dacite porphyry with greenstone

Name: Reindeer

Location: *N $\frac{1}{2}$ Sec. 3, T.37N., R.8W., MDBM, Trinity Co. (14)

Description: adit

Geology: shoot in 18" wide vein in granodiorite

Name: Golden Jubilee

Location: *NE $\frac{1}{4}$ Sec. 4, T.37N., R.8W., MDBM, Trinity Co. (6,11,14,24,26)

Description: 22,500 tons reportedly valued at \$150,000 produced prior to 1925 from seven adits, the lowest intersecting vein 700' below outcrop

Geology: gold in quartz vein strikes N30°E to N20°W, dips about 80°E in quartz diorite

Name: Liberty (*Poeth*)

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 4, T.37N., R.8W., MDBM, Trinity Co. (24)

Description: \$7,000 reportedly produced from 100' shaft

Geology: two parallel quartz veins 175' apart in quartz diorite; south vein averages 3' wide

Name: Blue Jay

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ and E $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 13, T.37N., R.8W., MDBM, Trinity Co. (11)

Description: reported yield of \$60,000 in gold from adits in 1892

Geology: two quartz veins near contact of greenstone with peridotite; shoot in 16'' vein

Name: Dorleska

Location: *SE $\frac{1}{4}$ Sec. 17 and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 20, T.37N., R.9W., MDBM, Trinity Co. (6,24,26)

Description: reported production of \$200,000 in gold from 350' shaft

Geology: oxidized N-trending veins in "porphyry" dike

Name: Yellow Rose

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 20, T.37N., R.9W., MDBM, Trinity and Siskiyou Counties (6,24,26)

Description: shallow workings

Geology: quartz veins and gouge in 50' "porphyry" dike that strikes N16°E, dips 75°W in dacite porphyry; cross-faults offset dike and quartz veins

Location: NE $\frac{1}{4}$ Sec. 23, T.38N., R.7W., MDBM, Trinity Co. (1)

Description: adit; reported assays to 0.6 oz. Au; seven selected samples assayed 0–0.005 oz. Au and 0.015–0.220% Cu

Geology: quartz vein to 4' wide and 400' long strikes N60°W in gabbro

Conclusions: shows little promise

Location: SW $\frac{1}{4}$ Sec. 35, T.38N., R.7W., MDBM, Trinity Co. (1)

Description: two or three adits and several trenches; three selected samples from 6' wide vein assayed 0.04–0.89 oz. Au and 0.15–0.5 oz. Ag

Geology: eight to ten quartz veins dip steeply E in gabbro along shear zone trending N10°E for 300'; one vein is about 6' wide

Conclusions: warrants further exploration

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 19, T.38N., R.8W., MDBM, Trinity Co. (1)

Description: adits

Geology: quartz veins in serpentinized peridotite near contact with gabbro

Conclusions: shows little promise

Location: SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 21, T.38N., R.8W., MDBM, Trinity Co. (1)

Description: minor surface workings

Geology: quartz veins in dacite porphyry

Conclusions: shows little promise

Name: Sunshine

Location: *S $\frac{1}{2}$ Sec. 33, T.38N., R.8W., MDBM, Trinity Co. (24)

Description: 75' adit on vein; quartz assayed about 0.4 oz. Au

Geology: quartz vein in granodiorite

Name: Wagner

Location: *SW $\frac{1}{4}$ Sec. 34, T.38N., R.8W., MDBM, Trinity Co. (26)

Description: \$8,000 gross reported prior to 1913; Black Warrior and Mizpah veins mined from adits

Geology: Black Warrior vein averages 17" wide; Mizpah veins strike NE, dip SE at 35° and steeper in granodiorite; veins are offset by steep, NW-trending faults

Name: Rohlin

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 20, T.38N., R.9W., MDBM, Trinity Co. (1)

Description: some production from adit

Geology: quartz vein containing gold, silver, and lead

Name: Gypsie Queen

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 23, T.38N., R.9W., MDBM, Trinity Co. (11)

Description: shallow workings

Geology: quartz vein in peridotite

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 30, T.38N., R.9W., MDBM, Trinity Co. (1)

Description: 30' shaft and 50' adit

Geology: quartz stringers 2-6" wide strike NE in mica schist

Name: Victoria

Location: *Sec. 6, T.39N., R.3W., MDBM, Siskiyou Co. (20,23)

Description: adit to vein

Geology: auriferous sulfides in thirteen quartz veins 1-12' wide in "diabase"

Name: Underland (*Julia*)

Location: *Sec. 28, T.39N., R.3W., MDBM, Siskiyou Co. (8)

Description: several hundred feet of adits at different levels; one encountered 3' wide quartz vein which reportedly assayed 0.34 oz. Au

Geology: gold-bearing quartz in 1-4.5' wide gouge zone in slate

Name: Soda Mint

Location: *Sec. 29, T.39N., R.3W., MDBM, Siskiyou Co. (8)

Description: adits; assayed 0.27 oz. Au

Geology: deeply weathered, gossan-like zone 200' wide in igneous rock; some quartz stringers and vugs

Name: Boulder (*Pumpkin Roller*)

Location: *Sec. 30, T.39N., R.3W., MDBM, Siskiyou Co. (20)

Description: adit

Geology: 6' quartz vein with slate hanging wall and "porphyry" footwall

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T.39N., R.7W., MDBM, Trinity Co. (1)

Description: adit, shaft, and several pits

Geology: 1–2' quartz vein strikes N80°E, dips 60°N in peridotite; associated with diorite dike

Name: Grand National

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 25, T.39N., R.8W., MDBM, Trinity Co. (1,11)

Description: 700' adit along 4' wide quartz vein; three other adits

Geology: sulfides in 23' wide shear zone that strikes N, dips 70°E in granodiorite and hornblende diorite

Name: Eagle

Location: *S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 32, T.39N., R.8W., MDBM, Trinity Co. (1)

Description: 50' shaft

Geology: veins in hornblende diorite dikes intruding serpentinite and peridotite; shoot 1–3' wide and 3' long

Location: NW $\frac{1}{4}$ Sec. 33, T.39N., R.8W., MDBM, Trinity Co. (1)

Description: three adits worked sporadically for 25 years prior to 1921

Geology: marcasite along contact between hornblende diorite and peridotite

Conclusions: shows little promise

Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 21, T.40N., R.6W., MDBM, Trinity Co. (1)

Description: hydraulic pit 400' long, 50' wide, and 25–40' deep

Geology: quartz stringers in a hydrothermally altered and pyritized dacite dike intruding serpentinite

Conclusions: shows little promise

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 28, T.40N., R.6W., MDBM, Trinity Co. (1)

Description: pit; active 1955

Geology: auriferous quartz stringers and hydrothermally altered and pyritized dacite dike intruding serpentinite

Name: Facey

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 10, T.40N., R.7W., MDBM, Siskiyou Co. (1)

Description: several adits

Geology: auriferous quartz veins and stringers in gabbro-diorite

Name: Barrandum

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 17, T.40N., R.7W., MDBM, Siskiyou Co. (1,6)

Description: three adits; 116 tons of 0.39 oz. Au reportedly produced in 1931, sample from one ton of concentrates reported to assay 2.8 oz. Au

Geology: two 3' wide quartz veins strike NE, dip NW in metamorphic rocks near peridotite-slate contact

Name: Porphyry Dike

Location: *Sec. 18, T.40N., R.7W., MDBM, Siskiyou Co.

(1)

Description: pit

Geology: auriferous "porphyry" dike in serpentinite

Location: S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 19, T.40N., R.7W., MDBM, Siskiyou Co.

(1,23)

Description: \$7000 reported production from 1910 to World War II from several adits and pits; sample of "high grade" reportedly assayed 2.2 oz. Au; 2.655 oz. Au and 0.2 oz. Ag reported for sample of sulfide concentrate

Geology: quartz stringers in 20' wide altered zone trending N70°E for about 500' along hornblende diorite dike intruding serpentinite

Conclusions: warrants further exploration

Name: Copper King

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 20, T.40N., R.7W., MDBM, Siskiyou Co.

(1,16,28)

Description: pit and 300' adit on vein; pit reportedly yielded 50 tons of 5% Cu and 0.23 oz. Au; active 1943

Geology: auriferous sulfides in 3-8' wide quartz vein that strikes N10°E, dips 73°W in serpentinite near contact with dacite porphyry

Name: Welders

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 20, T.40N., R.7W., MDBM, Siskiyou Co.

(1)

Description: 170' adit on vein

Geology: SE-trending quartz vein along contact between dacite porphyry dike and serpentinite; values reported in serpentinite

Name: Kangaroo

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ and E $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 29, T.40N., R.7W., MDBM, Siskiyou Co.

(1,14,23)

Description: 220' adit and 400' of drifts; reportedly produced "high grade"

Geology: shoot in peridotite and dacite porphyry

Name: Chapman

Location: *SE $\frac{1}{4}$ Sec. 30, T.40N., R.7W., MDBM, Siskiyou Co.

(1,23)

Description: 200' adit on vein and 80' incline; reported yield of about 80 tons of concentrate valued at about \$1700

Geology: E-trending quartz stringers in serpentinite

Name: Corey

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 30, T.40N., R.7W., MDBM, Siskiyou Co.

(1,6,23)

Description: two E-trending adits

Geology: quartz stringers in serpentinite

Name: Crawley

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ (?) Sec. 22, T.40N., R.8W., MDBM, Siskiyou Co. (14,23)

Description: \$60,000 reported from adit

Geology: “pockets” in hornblende schist

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 5, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: three adits to vein

Geology: NE-striking quartz stringers along gabbro-peridotite contact

Name: Dewey

Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 6, T.41N., R.6W., MDBM, Siskiyou Co. (1,6,8,14,16,23)

Description: 400' shaft and 920' adit lead to extensive workings; discovered in 1880's, worked until 1917 and reopened in early 1930's; over \$900,000 reported prior to 1907

Geology: 3' quartz veins strike N40°E, dip 30°E in diorite and granodiorite; other veins strike E, dip 70–80°N

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 7, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: 40' shaft on vein

Geology: quartz vein strikes N40°E in peridotite

Location: *N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 18, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: four short adits and a trench

Geology: E-trending quartz stringers in diorite

Location: NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: shallow pits; selected sample assayed 0.86 oz. Au, 0.5 oz. Ag, and 2.47% Cu

Geology: chalcopyrite and pyrite locally altered to malachite and limonite in two 1–8' wide, NW-trending quartz veins in gabbro; veins offset by NE-trending faults

Conclusions: warrants further exploration

Name: Gold Mountain Group

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 2, T.41N., R.7W., and SE $\frac{1}{4}$ Sec. 35, T.42N., R.7W., MDBM, Siskiyou Co. (1,6,28)

Description: four adits, numerous shallow pits and trenches; assays of 0.05–0.35 oz. Au and a trace to 0.23% Ni reported; first worked 1896

Geology: auriferous, sulfide-bearing quartz veins in 40' wide zone that strikes S60°E in quartz diorite near contact with quartzite

Name: Mammon Group

Location: *Sec. 14, T.41N., R.7W., MDBM, Siskiyou Co. (28)

Description: several pits, trenches and adits; 0.014–0.94 oz. Au, 1.5–3.5% Cu reported

Geology: auriferous, sulfide-bearing quartz veins and “quartz porphyry” dike in granodiorite

Name: King Tut

Location: *Sec. 32, T.41N., R.7W., MDBM, Siskiyou Co. (8)

Description: 55' shaft; quartz reportedly assayed 0.28–0.55 oz. Au

Geology: copper sulfides in “bunches” of quartz in nearly vertical fracture zone in “andesite” and “diorite”

Name: Skelton

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ (?) Sec. 26, T.41N., R.9W., MDBM, Siskiyou Co. (14)

Description: located 1893; vein reported to assay 0.15 oz. Au, 2% Cu and a trace of Ag

Geology: 4' wide vein traced 130' in schist and phyllite

Name: Empire Group (*Empire, May Day, Read, Lena Claims*)

Location: *Secs. 27 and 34, T.41N., R.9W., MDBM, Siskiyou Co. (8)

Description: 300' drift on May Day vein; production from 15' long stopes assayed 0.3–2.1 oz. Au; 3.2 oz. Au reported from stringers

Geology: 4–18" wide quartz veins and stringers in slate, chert, and andesite; samples from five stringers in a 50' andesite dike assayed about 1.22 oz. Au

Name: Roff

Location: *Sec. 27, T.41N., R.9W., MDBM, Siskiyou Co. (8)

Description: 50' adit; 0.073 oz. Au reported

Geology: 50' wide andesite dike in phyllite and schist

Name: Roff (*Cory or Bridger*)

Location: *Sec. 34, T.41N., R.9W., MDBM, Siskiyou Co. (8)

Description: two adits to vein, several adits on vein, and a pit; 0.44 oz. Au reported from pit; worked during 1890's and in 1935

Geology: 18–24" wide iron-stained quartz vein in slate and chert

Name: Zarina (*Czarina*)

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 27, T.41N., R.10W., MDBM, Siskiyou Co. (1,14,28)

Description: two adits and several drifts; worked prior to 1911

Geology: NE-trending quartz veins in schist, slate, and phyllite

Name: Taylor Lake

Location: *W $\frac{1}{2}$ Sec. 28, T.41N., R.10W., MDBM, Siskiyou Co. (1)

Description: over \$80,000 reportedly produced from two 100' adits

Geology: quartz veins near contact of hornblende schist and diorite

Name: Hogan

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 32, T.41N., R.10W., MDBM, Siskiyou Co. (1,28)

Description: several SE-trending adits

Geology: quartz veins in schist near granodiorite; one vein 6–12" wide strikes S20°E, dips 28°E

Name: Homestake

Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 32, T.41N., R.10W., MDBM, Siskiyou Co. (1,14,23)

Description: several thousand dollars of 0.97 oz. Au reportedly produced from SE-trending adits

Geology: 1–2% auriferous sulfides in quartz veins 6–12" wide in "quartz porphyry" and schist

Name: Lucky Strike

Location: *NW $\frac{1}{4}$ Sec. 33, T.41N., R.10W., MDBM, Siskiyou Co. (1,14)

Description: 450' adit; \$20,000 reportedly produced from one pocket; worked 1914

Geology: quartz vein in granodiorite

Name: Keenan

Location: *N $\frac{1}{2}$ NE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 7, T.43N., R.9W., MDBM, Siskiyou Co. (28)

Description: 111' shaft with crosscut to vein; 175' adit on vein

Geology: quartz vein 3.5' wide strikes N10°E dips 45°E in greenstone

Name: Turk

Location: *N $\frac{1}{2}$ NE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 7, T.43N., R.9W., MDBM, Siskiyou Co. (8)

Description: extensive workings on three quartz veins; upper level on vein for 400', lower level for 600'; worked 1935

Geology: quartz veins to 8' wide in greenstone; main vein strikes N25°W, dips 62°NE

Name: Star

Location: *NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 7, T.43N., R.9W., MDBM, Siskiyou Co. (14)

Description: 700' adit driven north; located 1882

Geology: quartz pockets in "quartz porphyry" and greenstone

Name: Big Ledge (*Lewis*)

Location: *Sec. 8, T.43N., R.9W., MDBM, Siskiyou Co. (14,23)

Description: 360' adit

Geology: auriferous quartz "pockets" and 100' long shoot in diabase

Name: Blind Lode and Connor

Location: *W $\frac{1}{2}$ Sec. 18, T.43N., R.9W., MDBM, Siskiyou Co. (14)

Description: located 1876; \$40,000 reportedly produced from four adits to 600' long on Blind Lode; \$15,000 reported from 500' adit on Connor

Geology: veins and quartz "pockets" in diabase and greenstone

Name: Golden Seal

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 18, T.43N., R.9W., MDBM, Siskiyou Co. (14,23)

Description: 525' adit

Geology: 300' long shoot on 8" wide dike in greenstone

Name: Johnson and Lewis Group

Location: *Sec. 18, T.43N., R.9W., MDBM, Siskiyou Co. (6,8)

Description: 80' adit to vein and 110' adit on vein

Geology: quartz vein 2.5' wide crops out for 1000' in greenstone

Name: Providence

Location: *N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 18, T.43N., R.9W., MDBM, Siskiyou Co. (14,23)

Description: 650' adit

Geology: quartz pockets in greenstone

Name: Big Add

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 18, T.43N., R.9W., MDBM, Siskiyou Co. (1)

Description: several adits

Geology: quartz in greenstone and marble

Name: Johnson and China Paul, Saint Lawrence

Location: *Sec. 12, T.43N., R.10W., MDBM, Siskiyou Co. (14,23)

Description: 680' adit on Johnson and China Paul; 220' adit on Saint Lawrence

Geology: 10'' vein in diabase at Johnson and Paul; shoot 200' long; quartz pockets in "quartz porphyry" on Lawrence

Name: Oom Paul (*Umpah*)

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 12, T.43N., R.10W., MDBM, Siskiyou Co. (27)

Description: 50' adit

Geology: 4-20'' quartz vein strikes N35°W, dips 50°N in greenstone with quartz diorite dike hanging wall

Name: Gibraltar

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 13, T.43N., R.10W., MDBM, Siskiyou Co. (27)

Description: 35 tons of 0.81 oz. Au reportedly mined via 100' incline

Geology: quartz vein in greenstone

Name: Morrison and Carlock (*Little Queen*)

Location: *N $\frac{1}{2}$ (?) Sec. 13, T.43N., R.10W., MDBM, Siskiyou Co. (6,8,14,23)

Description: \$500,000 reportedly produced prior to 1907 from 400' incline leading to extensive workings; worked intermittently since 1907

Geology: veins from 12-18'' wide in "quartz porphyry," greenstone, and marble

Name: Scioc

Location: *Sec. 13, T.43N., R.10W., MDBM, Siskiyou Co. (23)

Description: pits and 68' shaft; worked 1925

Geology: 1-2' vein in greenstone

Name: Attlebury

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 24, T.43N., R.10W., MDBM, Siskiyou Co. (1)

Description: adits and pits

Geology: quartz veins strike N10–20°E in greenstone

Name: Gold Reef (*Bean*)

Location: *NW¼NE¼SW¼ Sec. 34, T.43N., R.10W., MDBM, Siskiyou Co. (28)

Description: 215' adit to vein intersected 25' of pyrite which reportedly assayed 0.06 oz. Au; about 900 tons milled in 1942; quartz reportedly assayed 0.13 oz. Au

Geology: 21' wide and 500' long quartz vein strikes S25°W in schist

Location: W½W½ Sec. 1, T.44N., R.9W., MDBM, Siskiyou Co. (1)

Description: two adits and several pits

Geology: quartz veins in schist and greenstone

Conclusions: shows little promise

Name: New York

Location: *S½SW¼ Sec. 2, T.44N., R.9W., MDBM, Siskiyou Co. (1,5,8,23)

Description: first worked in 1856; 800' incline connecting extensive workings; active 1933

Geology: gold and auriferous sulfides in quartz vein that strikes N, dips 85°E in greenstone

Name: Sheba

Location: *NE¼SW¼ Sec. 7, T.44N., R.9W., MDBM, Siskiyou Co. (1)

Description: about \$80,000 in gold reportedly mined prior to 1915 from adits leading to extensive workings

Geology: quartz veins to 6' wide dip 38°E in greenstone

Name: Franklin

Location: *NE¼NE¼ Sec. 9, T.44N., R.9W., MDBM, Siskiyou Co. (1,14,23)

Description: \$90,000 of 0.71–1.0 oz. Au reported mined from adits, one 600' long, prior to 1913

Geology: gold and auriferous sulfides in 0.5–6'' quartz stringers that strike E-W and dip 40°S in greenstone, slate and “quartz porphyry”

Location: *SW¼SE¼ Sec. 9, T.44N., R.9W., MDBM, Siskiyou Co. (1)

Description: 100' adit; quartz reportedly assayed about 0.86 oz. Au

Geology: gold and auriferous sulfides in quartz vein 1' wide in greenstone

Name: Ben Neil

Location: *Sec. 10, T.44N., R.9W., MDBM, Siskiyou Co. (14)

Description: 100' adit

Geology: quartz “pockets” in diorite

Name: Golden Eagle (*Indian Creek*)

Location: *SE¼NW¼ Sec. 11, T.44N., R.9W., MDBM, Siskiyou Co. (6,8,14,23,28)

Description: first worked prior to 1900; reportedly produced about \$1,000,000 prior to 1913 from 750' adit on vein and an incline leading to extensive workings; W-dipping vein assayed 0.68 oz. Au

Geology: four N-trending veins, three dip E and one W; shoots 200' by 15-36"; wall rocks are diabase, schist, and greenstone

Location: *SE $\frac{1}{4}$ Sec. 11, T.44N., R.9W., MDBM, Siskiyou Co. (8)

Description: 50' adit to vein

Geology: 3-4' wide quartz-gouge zone dips 45°E

Name: Grizzly Gulch

Location: *Sec. 14, T.44N., R.9W., MDBM, Siskiyou Co. (14,23)

Description: \$4000 in gold reported mined from an 80' adit

Geology: quartz "pockets" in diabase

Name: Reno Group

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 14, T.44N., R.9W., MDBM, Siskiyou Co. (8)

Description: pits

Geology: gold and auriferous sulfides in quartz stringers and "pockets" in and along andesite dike intruding greenstone

Name: Baker

Location: *Sec. 15, T.44N., R.9W., MDBM, Siskiyou Co. (14,23)

Description: 300' adit; small producer

Geology: quartz "pockets" in slate

Location: NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 17, T.44N., R.9W., MDBM, Siskiyou Co. (1)

Description: 30' trench and 20' adit

Geology: small vertical quartz vein in greenstone

Conclusions: shows little promise

Location: SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 17, T.44N., R.9W., MDBM, Siskiyou Co. (1)

Description: 30' trench

Geology: 2-6" wide quartz stringer in greenstone

Conclusions: shows little promise

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 17, T.44N., R.9W., MDBM, Siskiyou Co. (1)

Description: 30' trench and pit

Geology: 3-36" wide quartz vein in greenstone

Name: Wicks

Location: *Sec. 13, T.44N., R.10W., MDBM, Siskiyou Co. (14)

Description: 150' adit, "high grade" mined from surface

Geology: shoot in faulted diabase in greenstone

Name: Gold Bar

Location: *N $\frac{1}{2}$ Sec. 2, T.45N., R.7W., MDBM, Siskiyou Co. (28)

Description: four shafts to 50' deep, five adits to 140' long, numerous pits, and trenches; stringer zones reportedly assayed 0.12–0.04 oz. Au

Geology: quartz stringers and veins in greenstone

Name: Elk Creek

Location: *Sec. 3, T.45N., R.7W., MDBM, Siskiyou Co. (14)

Description: \$20,000 produced from two adits, 450' and 600' long; located 1903

Geology: three parallel veins in slate, “porphyry,” and greenstone; shoot 100' long and 14" wide

Name: Red Hill

Location: *Sec. 4, T.45N., R.7W., MDBM, Siskiyou Co. (14,23)

Description: three adits reportedly produced \$6,000 (1914)

Geology: 13" quartz vein in “quartz porphyry” intruding greenstone

Location: S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 5, T.45N., R.7W., MDBM, Siskiyou Co. (1)

Description: two adits and several pits; composite sample from dump assayed 0.045 oz. Au and 0.7 oz. Ag; samples from veins and dumps assayed 0.15–0.44 oz. Au

Geology: 100' wide zone of quartz veins and stringers trends NW in greenstone; two veins are 10–15' wide

Conclusions: warrants further exploration

Name: Long Gulch

Location: *SE $\frac{1}{4}$ Sec. 8, T.45N., R.7W., MDBM, Siskiyou Co. (28)

Description: worked 1914, 1946; three adits to 370' depth on vein

Geology: gold and auriferous sulfides in quartz veins to 3.5' wide that strike SW and dip steeply NW in greenstone; veins are offset to 16' by faults striking S70–80°W, and dipping 22–30°S

Name: Little Bonsa

Location: *S $\frac{1}{2}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 9, T.45N., R.7W., MDBM, Siskiyou Co. (14,20,23)

Description: \$8000 reported mined from two adits and \$1200 recovered from one “pocket”

Geology: quartz “pockets” and veins trend E and NE in greenstone

Name: Oro Grande

Location: *SE $\frac{1}{4}$ Sec. 10 and SW $\frac{1}{4}$ Sec. 11(?), T.45N., R.7W., MDBM, Siskiyou Co. (14,23)

Description: \$20,000 reportedly produced from 300' adit and 160' shaft

Geology: four parallel veins in greenstone

Name: Cape Cod

Location: *N $\frac{1}{2}$ NW $\frac{1}{4}$ (?) Sec. 18, T.45N., R.7W., MDBM, Siskiyou Co. (14,23)

Description: \$12,000 reportedly produced from a 300' adit

Geology: two narrow, parallel veins in slate and "porphyry"; shoot 300' long and 14" wide

Name: Humming Bug

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 18, T.45N., R.7W., MDBM, Siskiyou Co. (1,28)

Description: 700' adit

Geology: 3.5' quartz vein trends E in chert and phyllite near contact with granodiorite and greenstone

Name: Osgood (*Lucky Strike*)

Location: *N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 21, T.45N., R.7W., MDBM, Siskiyou Co. (6,8,14,23)

Description: about \$10,000 reported mined from 150' shaft and about 1600' of underground workings

Geology: gold and auriferous sulfides in 1.5-2' wide quartz veins that strike northerly in greenstone intruded by andesite dikes; veins are offset by numerous fractures

Name: Inyo

Location: *Sec. 2, T.45N., R.8W., MDBM, Siskiyou Co. (14,23)

Description: \$4000 reportedly produced from "pockets"

Geology: gold in quartz "pockets" in "quartz porphyry"

Name: Hegler (*Oregon*)

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.45N., R.8W., MDBM, Siskiyou Co. (23,28)

Description: three adits to 80' depth on vein; about 0.25 oz. Au reported; worked about 1890, in 1917, and in 1946

Geology: 2-6' wide quartz vein strikes NE and dips steeply SE in greenstone near contact with granodiorite

Name: Fleetwood and Nannie S (*Jackson*)

Location: *Sec. 5, T.45N., R.8W., MDBM, Siskiyou Co. (14,15,23)

Description: seven adits, 5-800' long; worked 1892

Geology: "pockets" in "granite porphyry"

Name: Mountain Belle

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ (?) Sec. 5, T.45N., R.8W., MDBM, Siskiyou Co. (15)

Description: 143 tons of 2.2 oz. Au reported mined from three adits to vein; first worked 1892

Geology: gold and auriferous sulfides in two shoots, 55' and 140' long, by 1-2' wide in vein that dips 45°SE in slate, marble, and greenstone

Name: McClaughry Group

Location: *Sec. 8, T.45N., R.8W., MDBM, Siskiyou Co. (14,23)

Description: 600' adit on vein

Geology: gold in shoot 160' long and 2' wide in "dolomite"

Name: North Star (*Boyle*)

Location: *NE $\frac{1}{4}$ Sec. 8, T.45N., R.8W., MDBM, Siskiyou Co. (14,15,23)

Description: five adits on vein, 40–900' long, and three adits to vein which reportedly assayed 0.97–4.9 oz. Au; active 1892

Geology: gold in shoot 200' long and 2' wide in vein striking N40°W and dipping 60°SW in gabbro and diabase

Name: Eliza

Location: *W $\frac{1}{2}$ Sec. 9, T.45N., R.8W., MDBM, Siskiyou Co. (6,8,14,23,28)

Description: \$150,000 reportedly produced to 1913 from five adits and extensive workings; 0.25–0.37 oz. Au reported

Geology: gold and auriferous sulfides in ribbon quartz vein 1–10' wide that strikes N along lamprophyre dikes intruding greenstone

Name: Nelson

Location: *S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 9, T.45N., R.8W., MDBM, Siskiyou Co. (15)

Description: SE-trending adit

Geology: quartz in greenstone; “pockets” assayed several hundred dollars per ton

Name: Spencer

Location: *W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 9, T.45N., R.8W., MDBM, Siskiyou Co. (15)

Description: “high grade” reported to contain 3% auriferous pyrite mined from 300' incline; active 1892

Geology: shoot 270' long and 1–36" wide in flat-dipping vein that strikes S35°E in greenstone

Name: War Horse claims (*McKinley*)

Location: *N $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 9, T.45N., R.8W., MDBM, Siskiyou Co. (28)

Description: 290' adit to vein; black gouge 3" wide reportedly assayed 1.23 oz. Au; quartz reportedly assayed 0.11 oz. Au

Geology: 12" quartz vein strikes N, dips 54°E in greenstone

Name: Old Vet and Eclipse

Location: *Secs. 10 and 11, T.45N., R.8W., MDBM, Siskiyou Co. (14,23)

Description: three adits

Geology: two parallel veins in granite

Name: Middle Fork (*Crouch, Gold Crown*)

Location: *N $\frac{1}{2}$ Sec. 11, T.45N., R.8W., MDBM, Siskiyou Co. (16,28)

Description: numerous pits, several adits, and an 80' shaft

Geology: brecciated quartz stringers and veins to 3' wide in granodiorite near contact with hornblende diorite

Name: Katie May Group

Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 13 and N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 24, T.45N., R.8W., MDBM, Siskiyou Co. (8,14,23,28)

Description: located 1886; \$70,000 reportedly produced from numerous pits, several adits and shafts to 80' deep; active 1935

Geology: gold and auriferous sulfides in quartz stringers and veins 4-14" wide in slate, schist, and greenstone

Name: Schroeder

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 17, T.45N., R.8W., MDBM, Siskiyou Co. (6,8,23,28)

Description: several adits leading to extensive workings on at least five veins; samples from 100' drift on East-West vein reported to assay 1.14 oz. Au; worked 1890's, 1927, 1935 and 1941

Geology: East-West vein dips 60-70°S; veins are in gabbro and diabase and are offset by faults

Name: Hoboken

Location: *SW $\frac{1}{4}$ Sec. 22, T.45N., R.8W., MDBM, Siskiyou Co. (14,23)

Description: three adits to vein and several drifts to 500' long; active 1907, 1919-1922

Geology: gold and 2-5% auriferous sulfides in six-inch to six-foot-wide quartz vein with diabase footwall and slate hanging wall

Name: Gold Road Group

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 23, T.45N., R.8W., MDBM, Siskiyou Co. (6)

Description: active about 1900 and 1930-31; 0.39-0.92 oz. Au reported for quartz from 50' drift

Geology: ribbon quartz in greenstone

Name: Blue Horn

Location: *Sec. 24, T.45N., R.8W., MDBM, Siskiyou Co. (8)

Description: 0.7 oz. Au reported mined from 45' shaft and 185' of drifts; active 1935

Geology: 6" quartz vein in greenstone

Name: Ironsides (*Little Wonder*)

Location: *Sec. 26, T.45N., R.8W., MDBM, Siskiyou Co. (14,23)

Description: "high grade" reported mined from three adits

Geology: pockets of gold-bearing quartz in schist and greenstone

Name: Mt. Vernon

Location: *SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 26, T.45N., R.8W., MDBM, Siskiyou Co. (1,6,8,14,23,28)

Description: worked intermittently since about 1875; production from extensive workings reportedly assayed 0.2-1.22 oz. Au; active 1957

Geology: gold and auriferous sulfides in quartz veins that strike S10°E and S16°W and dip about 40°E in greenstone, slate, phyllite, and diabase

Name: Cherry Hill

Location: *S $\frac{1}{2}$ Sec. 27, T.45N., R.8W., MDBM, Siskiyou Co. (6,8,14,28)

Description: four S-trending adits to 450' long on vein; stope 300' long and 80-100' high; quartz reportedly assayed 2.5 oz. Au and sulfide concentrates about 20 oz. Au; worked intermittently 1913-45

Geology: gold and auriferous sulfides in 10'' wide quartz vein that strikes S15°W and dips 83°E in greenstone, schist, and granodiorite; vein offset 8 25' by NW-striking, NE-dipping faults

Name: Hi-You, Aurora, and Apex

Location: *NW $\frac{1}{4}$ Sec. 30, T.45N., R.8W., MDBM, Siskiyou Co. (8)

Description: production from six adits; 0.1–1.0 oz. Au reported

Geology: 1–2' wide ribbon quartz veins separated by thin seams of graphite in graphite schist; associated with andesite dike

Location: SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 5, T.45N., R.9W., MDBM, Siskiyou Co. (1)

Description: 25' adit

Geology: quartz vein in granodiorite

Conclusions: shows limited promise

Name: K. C., Columbia, and Golden Eagle Group

Location: *W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 6, T.45N., R.9W., and E $\frac{1}{2}$ Sec. 1, T.45N., R.10W., MDBM, Siskiyou Co. (1,6,14,23,28)

Description: six adits to 700' long, 120' shaft, several pits; one vein reportedly assayed 0.91 oz. Au; over 7000 tons reportedly produced 1895–1912, mainly from the Columbia workings in Sec. 1

Geology: gold and sulfides in quartz veins 1–4' wide that strike NW and dip 18–33°N in schist near contact with marble lenses

Name: Golden Age "98"

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 8, T.45N., R.9W., MDBM, Siskiyou Co. (1,6)

Description: 0.5 oz. Au reported from adits and pits

Geology: 1.5–4' wide quartz vein strikes NE in granodiorite

Name: M and M

Location: *N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 8, T.45N., R.9W., MDBM, Siskiyou Co. (1)

Description: three SW-trending adits; active 1940

Geology: NE-trending quartz veins to 8'' wide in granodiorite

Name: Gumboat

Location: *Sec. 16, T.45N., R.9W., MDBM, Siskiyou Co. (6,8,14,23)

Description: 120' adit to vein, 100' drift, and 100' raise to surface; two adits on separate veins

Geology: 3' wide quartz vein strikes N55°W, dips 32–62°SW; another vein trends S40°W; schist wall rock

Name: Big Joe

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 18, T.45N., R.9W., MDBM, Siskiyou Co. (1)

Description: E-trending adit on vein

Geology: quartz vein in schist

Name: Quartz Hill

Location: *E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 16, T.45N., R.10W., MDBM, Siskiyou Co. (6,8,14,27,28)

Description: drift and shafts; originally hydraulicked about 1852; annual production reported at about \$10,000–12,000; active 1947

Geology: silver and gold-bearing quartz stringers and lenses in 1800' wide zone in schist

Name: Scott Bar

Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 16 and N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 21, T.45N., R.10W., MDBM, Siskiyou Co. (27,28)

Description: 165' incline; levels at 100', 155', and 165'; more than \$41,000 reportedly produced from several "pockets" averaging 0.53 oz. Au

Geology: gold and auriferous sulfides in WNW-trending quartz stringers and lenses in mica schist

Name: Mat-o-pan

Location: *S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 17, T.45N., R.10W., MDBM, Siskiyou Co. (8)

Description: weathered surface material hydraulicked

Geology: gold and auriferous sulfides in network of 1–2' wide quartz veins in schist

Name: Crawfish Gulch

Location: *Sec. 18, T.45N., R.10W., MDBM, Siskiyou Co. (19,23)

Description: worked to 50' depth; 70' adit on vein; \$4,000 reported production to 1920

Geology: gold, silver, and copper minerals in quartz vein that strikes E and dips S in schist

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 25, T.45N., R.10W., MDBM, Siskiyou Co. (1)

Description: several pits

Geology: 2' wide, NW-trending quartz vein in schist

Conclusions: shows little promise

Name: Negro Boy

Location: *SW $\frac{1}{4}$ Sec. 1, T.46N., R.7W., MDBM, Siskiyou Co. (6,8,14,23)

Description: 50,000–75,000 tons of 1.5 oz. Au mined from 3700' of adits and drifts 1891–1915

Geology: 2' wide quartz vein dips less than 10° in graphite schist and greenstone

Name: Reeder Group

Location: *Sec. 8, T.46N., R.7W., MDBM, Siskiyou Co. (14,23)

Description: located 1875; \$50,000 reportedly produced prior to 1914 from three adits

Geology: quartz vein in slate

Location: W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 13, T.46N., R.7W., MDBM, Siskiyou Co. (1)

Description: \$20,000 produced 1900–15 from three adits and several pits

Geology: quartz veins in greenstone

Conclusions: shows limited promise

Name: Indian Girl

Location: *Sec. 14, T.46N., R.7W., MDBM, Siskiyou Co. (1,8)

Description: \$250,000 reportedly produced from several NW-trending adits and pits

Geology: quartz veins in greenstone

Name: Highland

Location: *E $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 25, T.46N., R.7W., MDBM, Siskiyou Co. (14,23)

Description: 1500' adit; located 1903

Geology: shoot 125' long by 10' wide in slate

Name: Gold Leaf

Location: *S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 26, T.46N., R.7W., MDBM, Siskiyou Co. (1,8)

Description: "high grade" mined from two NW-trending adits to 185' long

Geology: quartz veins 6–18" wide strike NW, dip SW in greenstone

Name: Blackhawk

Location: *Sec. 31, T.46N., R.7W., MDBM, Siskiyou Co. (14,23)

Description: 100' adit

Geology: "pockets" of quartz in granite and schist

Name: Norma

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 28, T.46N., R.8W., MDBM, Siskiyou Co. (8)

Description: several hundred feet of trenches

Geology: quartz veins with auriferous sulfides in diorite

Location: *NW $\frac{1}{4}$ Sec. 28, T.46N., R.8W., MDBM, Siskiyou Co. (8)

Description: several hundred feet of workings

Geology: quartz veins with auriferous sulfides in diorite

Name: Easter

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 34, T.46N., R.8W., MDBM, Siskiyou Co. (20,23)

Description: 40' shaft leading to 380' of drifts and 300' adit

Geology: 4–12" quartz vein in granodiorite

Name: Double Eagle and Little Quartz

Location: *Sec. 26, T.46N., R.9W., MDBM, Siskiyou Co. (14,23)

Description: \$10,000 reported from 120' adit

Geology: quartz "pockets" in hornblende schist and granodiorite

Name: Commodore

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 27, T.46N., R.9W., MDBM, Siskiyou Co. (1,6,8,23)

Description: worked prior to 1901; several thousand feet of underground workings since 1934; \$230,000 reportedly produced

Geology: gold and gold-bearing sulfides in quartz veins associated with lamprophyre dikes in granodiorite; main vein is vertical and 12-22" wide; Insurance vein, to 2' wide, strikes S70°W, dips 52°NW

Name: Goodenough

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 27, T.46N., R.9W., MDBM, Siskiyou Co. (1,6)

Description: SW-trending adits

Geology: 6' wide vertical quartz vein strikes S70°W in granodiorite

Location: N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 29, T.46N., R.9W., MDBM, Siskiyou Co. (1)

Description: selected sample from pit assayed 0.25 oz. Au

Geology: 3" wide quartz stringer in mica schist roof pendant in granodiorite

Conclusions: shows little promise

Location: NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.46N., R.9W., MDBM, Siskiyou Co. (1)

Description: two W-trending adits; selected sample assayed 0.08 oz. Au and 0.20 oz. Ag

Geology: 8' wide sulfide-bearing quartz lens strikes N65°E in schist

Conclusions: shows limited promise

Location: W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 31, T.46N., R.9W., MDBM, Siskiyou Co. (1)

Description: two adits

Geology: 2-6" quartz vein in schist

Conclusions: shows little promise

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 34, T.46N., R.9W., MDBM, Siskiyou Co. (1)

Description: 100' of drifts; active prior to 1940

Geology: iron-stained fault zone 2' wide in granodiorite

Name: Bailey

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 35, T.46N., R.9W., MDBM, Siskiyou Co. (14,23)

Description: "pockets" worked

Geology: quartz "pockets" in diorite

Name: Barnum

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 20, T.46N., R.10W., MDBM, Siskiyou Co. (1)

Description: two adits, each about 300' long

Geology: 1-5' wide quartz vein with abundant pyrite and locally chalcopyrite and gold in graphitic schist

Name: Hazel (Jillson)

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 31, T.47N., R.6W., MDBM, Siskiyou Co. (6,8,14,23)

Description: \$800,000 in 1.5 oz. Au reported produced from extensive underground workings

Geology: three veins, two of which are parallel, dip 40°S in greenstone; shoot 150' long and 3' wide

Name: Hicks

Location: *E $\frac{1}{2}$ Sec. 3, T.47N., R.7W., MDBM, Siskiyou Co. (1,14,23)

Description: reported production of over \$30,000

Geology: quartz veins in granite

Name: Harrington

Location: *Sec. 4, T.47N., R.7W., MDBM, Siskiyou Co. (1)

Description: several E-trending adits; active 1958

Geology: 3-9" wide quartz vein strikes ENE and dips 40°S in quartz diorite

Name: Spencer (Mullin)

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 8, T.47N., R.7W., MDBM, Siskiyou Co. (1,18)

Description: reportedly produced over \$50,000

Geology: quartz in schist and slate (?)

Location: NW $\frac{1}{4}$ Sec. 13, T.47N., R.7W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: quartz vein along fault zone in greenstone

Conclusions: shows little promise

Location: *W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 14, T.47N., R.7W., MDBM, Siskiyou Co. (1,14,23)

Description: \$10,000 reportedly produced from N-trending adit 1600' long

Geology: quartz "pocket" in hornblende schist and diorite

Name: Teddy-Avalon

Location: *Sec. 18, T.47N., R.7W., MDBM, Siskiyou Co. (23)

Description: 125' adit

Geology: 1' wide gold-bearing "pocket" in quartz diorite

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 25, T.47N., R.7W., MDBM, Siskiyou Co. (1,18)

Description: adits; active 1906-11

Geology: quartz-calcite vein in graphite schist

Conclusions: shows little promise

Location: *NE $\frac{1}{4}$ Sec. 30, T.47N., R.7W., MDBM, Siskiyou Co. (1)

Description: NW-trending adit

Geology: quartz vein in schist

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 31, T.47N., R.7W., MDBM, Siskiyou Co. (1)

Description: SE-trending adit

Geology: quartz "pocket" in schist

Conclusions: shows little promise

Name: Lucky Boy

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 35, T.47N., R.7W., MDBM, Siskiyou Co. (1)

Description: several adits to vein

Geology: veins strike NNE in greenstone

Name: Bumblebee

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 2, T.47N., R.8W., MDBM, Siskiyou Co. (1)

Description: two adits

Geology: NE-trending quartz veins in quartz diorite

Name: Corbett (*Cassadoga*)

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 2, T.47N., R.8W., MDBM, Siskiyou Co. (20,23,28)

Description: two adits on veins total 2000' long; 0.49 oz. Au reported; active 1924

Geology: 3.5–10' wide quartz veins strike E-W in granodiorite

Name: Golden Rule

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 10, T.47N., R.8W., MDBM, Siskiyou Co. (28)

Description: several pits, shafts, and three adits; active 1947

Geology: 8–10" wide quartz vein strikes S85°E and dips 87°N in granodiorite

Name: Trust Buster

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 10, T.47N., R.8W., MDBM, Siskiyou Co. (28)

Description: two adits

Geology: three sulfide-bearing quartz veins 3.5–10' wide in granodiorite; 8–10' wide vein reported to assay 0.37 oz. Au

Name: Blue Jay

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11, T.47N., R.8W., MDBM, Siskiyou Co. (14,23)

Description: two adits

Geology: 5' wide quartz vein 150' long on contact of diorite and schist

Name: New Year (*Bowser*)

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11, T.47N., R.8W., MDBM, Siskiyou Co. (8)

Description: adit leading to 200' drift

Geology: two 1' wide quartz veins strike E, dip 60°N in diorite and are separated by an 18" mafic dike

Location: *SW $\frac{1}{4}$ Sec. 17, T.47N., R.8W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: 1–2' wide quartz vein strikes NW in schist

Location: *NW $\frac{1}{4}$ Sec. 20, T.47N., R.8W., MDBM, Siskiyou Co. (1)

Description: two pits

Geology: quartz veins in schist

Name: Gold Bug (*Lumgrey*)

Location: *SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 22, T.47N., R.8W., MDBM, Siskiyou Co. (28)

Description: 1700 tons of 0.14 oz. Au reported milled in 1939

Geology: quartz stringers in schistose granodiorite

Name: Pilot Knob

Location: *SE $\frac{1}{4}$ Sec. 23, SW $\frac{1}{4}$ Sec. 24, and NE $\frac{1}{4}$ Sec. 26, T.47N., R.8W., MDBM, Siskiyou Co. (14,23)

Description: 0.2–0.88 oz. Au reported from adit to vein and three short adits on vein; active 1914 and 1920

Geology: three quartz veins and numerous stringers in hornblende schist

Location: SW $\frac{1}{4}$ Sec. 25, T.47N., R.8W., MDBM, Siskiyou Co. (1)

Description: several adits and pits; first worked 1878–79; worked on small scale until World War I

Geology: quartz veins in schist

Conclusions: shows limited promise

Name: Sundown

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 36, T.47N., R.8W., MDBM, Siskiyou Co. (1,14)

Description: two adits

Geology: shoot 2' wide and 100–200' long in schist and diorite

Location: *SW $\frac{1}{4}$ Sec. 36, T.47N., R.8W., MDBM, Siskiyou Co. (1)

Description: NW-trending adit

Geology: quartz vein in schist

Name: Sterling

Location: *W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 19, T.48N., R.8W., MDBM, Siskiyou Co. (1,14)

Description: \$50,000 reportedly produced from 620' adit to "pocket"

Geology: quartz vein in quartz diorite, and quartz "pocket" in slate and diabase

Name: Iron Dike

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 22, T.48N., R.8W., MDBM, Siskiyou Co. (1,6)

Description: adit to vein; active 1935

Geology: "pocket" gold in 2' wide quartz vein adjacent to a mafic dike in diorite

Name: Clay

Location: *S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 23 and NW $\frac{1}{4}$ Sec. 25, T.48N., R.8W., MDBM, Siskiyou Co. (1,28)

Description: 4' by 6' shaft, 20' deep leading to 20' drift; 65' shaft; 300' adit connecting 100' drift

Geology: auriferous sulfides in 8–10" wide quartz vein that strikes S85°E in granodiorite

Name: Last Chance

Location: *NE $\frac{1}{4}$ SE $\frac{1}{4}$ and SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 23, T.48N., R.8W., MDBM, Siskiyou Co. (1,28)

Description: pit and 80' incline

Geology: 2.5–20" wide quartz vein strikes N87°W in granodiorite

Name: Central (Wiegel)

Location: *S₂SE₄ Sec. 35, T.48N., R.8W., MDBM, Siskiyou Co. (6,8,14,23)

Description: three adits on vein; 2500 tons of 0.66 oz. Au reported developed prior to 1914; quartz vein assays 0.3 oz. Au

Geology: gold in three shoots about 30' long by 3-6' wide; wallrocks are diorite and mafic igneous rocks

Location: NW₄ Sec. 23, T.48N., R.9W., MDBM, Siskiyou Co. (1)

Description: active 1900-18; two adits and several pits

Geology: gold and auriferous sulfides in quartz vein to 4' wide with mica schist hanging wall and quartzite and marble footwall

Conclusions: shows little promise

Location: *NE₄ Sec. 24, T.48N., R.9W., MDBM, Siskiyou Co. (1)

Description: numerous pits

Geology: quartz lenses in NNW-trending zone in peridotite, schist, and gneiss

OCCURRENCES

Location: *Sec. 19, T.32N., R.5W., MDBM, Shasta Co. (20)

Geology: 2.5' wide auriferous quartz vein

Location: SW₄SE₄ Sec. 3, T.32N., R.6W., MDBM, Shasta Co. (1)

Geology: 2' wide quartz vein in rhyolite; selected samples assayed 0.25-0.5 oz. Au

Conclusions: shows limited promise

Location: NE₄ Sec. 29, T.32N., R.8W., MDBM, Trinity Co. (1)

Geology: gold in quartz veins in metamorphic rocks

Conclusions: shows limited promise

Location: E₂ Sec. 1, T.33N., R.8W., MDBM, Trinity Co. (1)

Geology: 6-24" wide quartz vein in NE₄, strikes NW, dips 60°NE, and assayed a trace Au; 2' wide quartz vein in SE₄ assayed 0.03 oz. Au

Conclusions: shows little promise

Location: SW₄ Sec. 17, T.34N., R.8W., MDBM, Trinity Co. (1)

Geology: auriferous sulfides in quartz vein 2' wide and 20' long that strikes N45-50°W and dips 80°NE in dacite porphyry; channel sample across vein assayed 0.03 oz. Au, and 0.8 oz. Ag

Conclusions: shows little promise

Location: NE₄ Sec. 29, T.34N., R.8W., MDBM, Trinity Co. (1)

Geology: silicified and pyritized zone 8-10' wide and 200' long in greenstone; pyrite occurs as sparse disseminations and rarely in massive pods; selected samples assayed a trace Au, 0.2 oz. Ag, and 0.06% Cu

Conclusions: shows little promise

- Location:* SW $\frac{1}{4}$ Sec. 25, T.34N., R.9W., MDBM, Trinity Co. (1)
Geology: small quartz veins in slate; selected sample assayed a trace Au and 0.1 oz. Ag
Conclusions: shows little promise
- Location:* NW $\frac{1}{4}$ SE $\frac{1}{4}$ and NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11, T.36N., R.10W., MDBM, Trinity Co. (1)
Geology: sparse pyrite and possibly gold in quartz stringers; largest stringer is 3'' wide and 20' long, strikes N80°E, dips 50°S in quartz diorite
Conclusions: shows little promise
- Location:* NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 31, T.37N., R.6W., MDBM, Trinity Co. (1)
Geology: gold in talcose zones in serpentinized peridotite
Conclusions: shows little promise
- Location:* *SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 9, T.37N., R.7W., MDBM, Trinity Co. (1)
Geology: sulfides in 6' wide quartz vein that strikes NW in peridotite
- Location:* Sec. 3, T.40N., R.7W., MDBM, Siskiyou Co. (1)
Geology: quartz veins in granodiorite
Conclusions: shows little promise
- Location:* SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 33, T.41N., R.7W., MDBM, Siskiyou Co. (1)
Geology: quartz vein containing galena and chalcopyrite in gabbro and diorite
Conclusions: shows little promise
- Location:* *SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 5, T.44N., R.9W., MDBM, Siskiyou Co. (1)
Geology: numerous quartz veins in schist
- Location:* NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.45N., R.9W., MDBM, Siskiyou Co. (1)
Geology: quartz vein in metamorphic wallrock; reportedly assayed 0.2 oz. Au
Conclusions: shows limited promise
- Location:* SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 5, T.45N., R.9W., MDBM, Siskiyou Co. (1)
Geology: gold and auriferous sulfides in 2' wide, highly fractured quartz vein in granodiorite
Conclusions: shows limited promise
- Location:* NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 9, T.45N., R.9W., MDBM, Siskiyou Co. (1)
Geology: gold and sulfides in 2' quartz vein in granodiorite
Conclusions: shows limited promise
- Location:* NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ and SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 9, T.45N., R.9W., MDBM, Siskiyou Co. (1)
Geology: gold-bearing quartz in granodiorite
Conclusions: shows little promise

Location: SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 29, T.46N., R.9W., MDBM, Siskiyou Co. (1)

Geology: sulfides in 5' wide quartz vein in granodiorite

Conclusions: shows limited promise

Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.46N., R.9W., MDBM, Siskiyou Co. (1)

Geology: quartz vein in schist; selected sample assayed 0.03 oz. Au and 0.60 oz. Ag

Conclusions: shows limited promise

TRENDS

Location: SW $\frac{1}{4}$ Sec. 3, T.32N., R.6W., MDBM, Shasta Co. (1)

Geology: quartz vein mined at Desmond, about 500' WSW of SW corner of Sec. 3, trends N53°E towards SW $\frac{1}{4}$ Sec. 3; gossan float and a zone of alteration trends easterly from vicinity of SW section corner for about 600–900'

GOLD (placer) [Au]

Placer gold has been mined sporadically for more than a century from gravel deposits along many of the rivers and streams in the Klamath Mountains. In addition, placer gold has been recovered from Tertiary gravel deposits, which mark the channels of former streams at elevations above present drainage levels. The gravels along major streams have proven to be the most productive. Many of these deposits have been worked several times, but gold in profitable amounts may remain in others.

Only those properties owned by Southern Pacific, and which are located on major streams or contain remnants of Tertiary gravel deposits, are listed:

SACRAMENTO RIVER:

NE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 15, T.36N., R.5W., MDBM, Shasta Co.

TRINITY RIVER (includes East Fork):

NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ S $\frac{1}{2}$ NW $\frac{1}{4}$, and NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 5, T.32N., R.9W., MDBM, Trinity Co.

E $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 29, T.33N., R.9W., MDBM, Trinity Co.

E $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.33N., R.9W., MDBM, Trinity Co.

N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 33, T.34N., R.8W., MDBM, Trinity Co.

NE $\frac{1}{4}$ NE $\frac{1}{4}$ and E $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 1, T.36N., R.7W., MDBM, Trinity Co.

W $\frac{1}{2}$ NE $\frac{1}{4}$, W $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$, and W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 3, T.38N., R.7W., MDBM, Trinity Co.

NW $\frac{1}{4}$ NW $\frac{1}{4}$, W $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$, and S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 15, T.38N., R.7W., MDBM, Trinity Co.

N $\frac{1}{2}$ NE $\frac{1}{4}$, E $\frac{1}{2}$ NW $\frac{1}{4}$, S $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$, and NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 21, T.38N., R.7W., MDBM, Trinity Co.

E $\frac{1}{2}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$, and SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29, T.38N., R.7W., MDBM, Trinity Co.

S $\frac{1}{2}$ SE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 1 and SE $\frac{1}{4}$ NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 11, T.39N., R.7W., MDBM, Trinity Co.

W $\frac{1}{2}$ E $\frac{1}{2}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 23, T.39N., R.7W., MDBM, Trinity Co.

W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 23, T.39N., R.7W., MDBM, Trinity Co.

W $\frac{1}{2}$ W $\frac{1}{2}$ NW $\frac{1}{4}$ and NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 35, T.39N., R.7W., MDBM, Trinity Co.

KLAMATH RIVER:

NE $\frac{1}{4}$ Sec. 7, T.46N., R.7W., MDBM, Siskiyou Co.

SE $\frac{1}{4}$ SE $\frac{1}{4}$, W $\frac{1}{2}$ SE $\frac{1}{4}$, and SW $\frac{1}{4}$ Sec. 13, T.46N., R.7W., MDBM, Siskiyou Co.

NW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ and S $\frac{1}{2}$ S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 15, T.46N., R.7W., MDBM, Siskiyou Co.

NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 9, T.46N., R.8W., MDBM, Siskiyou Co.

N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 11, T.46N., R.8W., MDBM, Siskiyou Co.

W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 33, T.46N., R.10W., MDBM, Siskiyou Co.

TERTIARY DEPOSITS:

N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 13, T.37N., R.4W., MDBM, Shasta Co.

W $\frac{1}{2}$ Sec. 15, T.37N., R.4W., MDBM, Shasta Co.

N $\frac{1}{2}$ Sec. 21, T.37N., R.4W., MDBM, Shasta Co.

IRON [Fe]

MINES AND PROSPECTS

Name: Pattymocus

Location: *Secs. 8, 9, 10, N $\frac{1}{2}$ Sec. 15, and Sec. 22, T.28N., R.9W., MDBM, Tehama Co. (1)

Description: extensive surface sampling and magnetic surveys indicate large body of magnetite-bearing rock; Davis Tube tests indicate recoverable magnetite content equivalent to 8% Fe per crude ton; concentrates contain 3–5% TiO₂

Geology: magnetite-bearing dunite in gabbro

Name: Shasta and California

Location: *Sec. 26, T.34N., R.4W., MDBM, Shasta Co. (see photo, page 86) (1,2,22,29)

Description: first mined about 1892; ore mined 1918–25 contained 65–68% Fe, 1–3.5% SiO₂, 0.2% S, and 0.12% P; about 100,000 tons¹ per year sold as ballast from Feb. 1942 through 1944; mined from open pits and adits; five diamond drill holes by U. S. Bureau of Mines in middle 1940's; more extensively drilled 1961

Geology: irregular lenses and disseminations of magnetite in contact-metamorphic zone between quartz diorite and limestone

Name: Hirz Mountain

Location: E $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 7, T.35N., R.3W., MDBM, Shasta Co. (1,21)

Description: 11,344 tons shipped from cut Oct. 1961 to Jan. 1962

Geology: massive and disseminated magnetite replacement deposits in augite-quartz diorite

Conclusions: contains a portion of the reserves given below in Sec. 8

Name: Hirz Mountain

Location: *NW $\frac{1}{4}$ Sec. 8, T.35N., R.3W., MDBM, Shasta Co. (1,21)

Description: minor production from shallow cuts; reserves of 200,000 tons of at least 60% Fe concentrate possible from 35% Fe in crude

Geology: massive and disseminated magnetite replacement deposits in augite-quartz diorite

¹ All tonnages are reported as long tons.

OCCURRENCES

Location: S $\frac{1}{2}$ Sec. 15, T.28N., R.9W., MDBM, Tehama Co. (1)

Geology: magnetite-bearing dunite in gabbro

Conclusions: shows little promise

Location: *E $\frac{1}{2}$ Sec. 34, T.33N., R.6W., MDBM, Shasta Co. (19)

Geology: magnetite lens about 275' by 100' by 40' in rhyolite; samples reportedly assay 63% Fe; two other smaller magnetite lenses in immediate area

Location: NW $\frac{1}{4}$ Sec. 31, T.37N., R.8W., MDBM, Trinity Co. (1)

Geology: magnetite in schist; one sample assayed 19.34% Fe

Conclusions: warrants geophysical survey

Location: *E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 34, T.38N., R.7W., MDBM, Trinity Co. (1)

Geology: three outcrops of magnetite-hematite in intrusive complex along N-trending zone offset by cross faults

Location: S $\frac{1}{2}$ Sec. 35, T.38N., R.7W., MDBM, Trinity Co. (1)

Geology: magnetite float traceable for 300 yards down slope from small outcrop on ridge; sample assayed 55.07% Fe

Conclusions: warrants geophysical survey

TRENDS

Location: W $\frac{1}{2}$ Sec. 5 and W $\frac{1}{2}$ Sec. 7, T.34N., R.3W., MDBM, Shasta Co. (1)

Geology: quartz diorite intrudes sedimentary complex and volcanic rocks; geologic setting similar to that at Shasta and Hirz Mountain magnetite deposits; no surface indications of iron deposits

Conclusions: possibility of magnetite at depth; warrants geophysical survey

LEAD [Pb]

MINES AND PROSPECTS

Location: *Sec. 27, T.34N., R.1W., MDBM, Shasta Co. (10,24)

Description: two adits and an incline

Geology: vein with about equal amounts of galena and sphalerite strikes N18°E, dips 30°W in limestone

Name: Balfrey (*Siskiyou Lead*)

Location: *SW $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 28 and NE $\frac{1}{4}$ Sec. 29, T.41N., R.7W., MDBM, Siskiyou Co. (1,6,8,28)

Description: adit and two shafts in Sec. 28, pits in Sec. 29; active 1931

Geology: vein to 12' wide and several hundred feet long strikes N15°E in diorite-gabbro; vein carries base-metal sulfides in a calcite-barite gangue

*Lead minerals are commonly associated with those of zinc, copper, gold, and silver.
See METALLICS.*

MANGANESE [Mn]

MINES AND PROSPECTS

Name: Bodecker

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 20, T.41N., R.9W., MDBM, Siskiyou Co. (1,30)

Description: pit

Geology: 2' wide NW-trending quartz vein containing rhodonite and pyrolusite; in metamorphic rocks

Name: Fort Jones (*Colgrove*)

Location: *SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 2, T.43N., R.9W., MDBM, Siskiyou Co. (28,30)

Description: 100' trench exposes oxidized manganese deposit which averages 20–25% Mn

Geology: pyrolusite, quartz, and limonite; faulted at N end and lenses out to S; strikes N30°E, dips 60°E in quartz-mica and glaucophane schist

Name: Scott River

Location: *N $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 3, T.43N., R.9W., MDBM, Siskiyou Co. (30)

Description: 100' trench exposes several manganese-oxide bodies assaying 15% Mn

Geology: landslide debris containing siliceous manganese oxide

Name: Chaparral Hill

Location: *SE $\frac{1}{4}$ Sec. 4, T.43N., R.9W., MDBM, Siskiyou Co. (1,30)

Description: surface workings on 30' by 50' area

Geology: siliceous manganese oxide in chert; deposit averages 20–25% Mn, strikes N10°W, dips 50°W in chert

Name: Oro Fino No. 1

Location: *NE $\frac{1}{4}$ Sec. 17, T.43N., R.9W., MDBM, Siskiyou Co. (30)

Description: two trenches

Geology: siliceous manganese-bearing bed 10' thick and 75' long assayed 25–30% Mn, strikes N55°W, dips 25°N in schist

Name: Oro Fino No. 2

Location: *SE $\frac{1}{4}$ Sec. 17, T.43N., R.9W., MDBM, Siskiyou Co. (30)

Description: trench exposes a bed for 20' on strike which averages about 25% Mn

Geology: vertically banded quartz-manganese-carbonate rock contains numerous manganese-carbonate nodules; metasedimentary wall rock

Name: Lewis

Location: *W $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 20, T.43N., R.9W., MDBM, Siskiyou Co. (30)

Description: a pit, 8' deep

Geology: lenticular deposit of crudely banded manganese oxide 15' by 4' in quartzite

Name: Walton

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 25, T.43N., R.10W., MDBM, Siskiyou Co. (30)

Description: short adit; active 1918

Geology: 4' thick manganese-bearing lens strikes N20°W, dips 25°W in thin-bedded chert

Name: Jim Allen

Location: *NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 8, T.44N., R.8W., MDBM, Siskiyou Co. (1,28,30)

Description: 23' wide pyrolusite zones exposed by three trenches in 1918

Geology: zone containing siliceous manganese-oxide and quartz veins strikes NE, dips 60°SE in quartz-mica schist; about 5' of quartz and rhodonite in hanging wall

OCCURRENCES

Location: *S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 18, T.35N., R.9W., MDBM, Trinity Co. (1)

Geology: 40' long by 5' wide manganese-bearing vein strikes N40°W and dips 60°E in mica schist

MERCURY [Hg]

MINES AND PROSPECTS

Location: SE $\frac{1}{4}$ Sec. 17, T.34N., R.3W., MDBM, Shasta Co. (1)

Description: pit

Geology: sparse cinnabar disseminations in andesite

Conclusions: shows limited promise

Location: NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 23, T.38N., R.4W., MDBM, Shasta Co. (1)

Description: trenches

Geology: three veins with traces of cinnabar along 3' wide, altered shear zone in greenstone

Conclusions: shows limited promise

Name: Shasta Lily

Location: *SW $\frac{1}{4}$ Sec. 14, T.38N., R.6W., MDBM, Trinity Co. (11)

Description: short adit and pit

Geology: vertical veins containing cinnabar strike N43°W in serpentinite

Name: Integral

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 15, NE $\frac{1}{4}$ Sec. 22, and NW $\frac{1}{4}$ Sec. 23, T.38N., R.6W., MDBM, Trinity Co. (11,14,24)

Description: worked 1902–03 from shaft and adit; chromite production reported 1914–18

Geology: mercury-bearing lenses in altered “porphyry” in serpentinite

Name: Altoona

Location: *N $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 22, T.38N., R.6W., MDBM, Trinity Co. (1,6,11,14,24)

Description: over 33,000 flasks of mercury produced prior to 1957 from extensive underground workings to a depth of 600'

Geology: cinnabar and some native mercury along steeply dipping, NE-trending faults in altered diorite near contact with peridotite

Name: Barton and Lange

Location: *NW $\frac{1}{4}$ Sec. 22, T.46N., R.9W., MDBM, Siskiyou Co. (14)

Description: short adit and pits

Geology: cinnabar-bearing dike 160' wide and 2,000' long in diorite and schist

Name: Hanaker

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 9, T.46N., R.10W., MDBM, Siskiyou Co. (1)

Description: several pits

Geology: traces of cinnabar on fractures in highly siliceous graphitic schist

Name: Minnehaha

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15 and NW $\frac{1}{4}$ Sec. 22, T.46N., R.10W., MDBM, Siskiyou Co. (1,23)

Description: short adit in Sec. 15 and shallow pits in Sec. 22

Geology: cinnabar in decomposed graphitic schist and soil

Name: Rainey (*Horse Creek*)

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 16, T.46N., R.10W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: mercury minerals disseminated in graphitic schist

Name: Cinnabar (*Great Northern*)

Location: *SW $\frac{1}{4}$ Sec. 13, T.47N., R.8W., MDBM, Siskiyou Co. (1,6,23,28)

Description: several adits and shafts; first reported production was 27 flasks in 1919, also worked 1925, 1929–32 and 1942

Geology: cinnabar and native mercury in a 20" vein which strikes N20°E, dips 58°W in brecciated hornfels

Name: Ivanhoe (*Cowgill*)

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 34, T.48N., R.9W., MDBM, Siskiyou Co. (1,23)

Description: active 1917 and 1939

Geology: cinnabar in quartz veins and altered diabase in mica schist

OCCURRENCES

Location: *SE $\frac{1}{4}$ Sec. 20, T.48N., R.9W., MDBM, Siskiyou Co.

(1)

Description: small pits

Geology: cinnabar along fault zone in metamorphic rocks

MOLYBDENUM [Mo]

MINES AND PROSPECTS

Name: Schlosser

Location: *SW $\frac{1}{4}$ NE $\frac{1}{4}$, N $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$, N $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$, and S $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 33, T.37N., R.5W., MDBM, Shasta Co.

(1,10)

Description: shaft

Geology: flakes of molybdenite disseminated in an aplite dike which strikes N65°W for about 1200' and attains a maximum width of 12'

NICKEL [Ni]

OCCURRENCES

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 25, T.37N., R.7W., MDBM, Trinity Co.
(See under METALLICS, Copper)

Name: Gold Mountain Group

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 2, T.41N., R.7W., and SE $\frac{1}{4}$ Sec. 35, T.42N., R.7W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

SILVER [Ag]

Silver valued in excess of \$13,000,000 has been produced since 1880 from Shasta, Siskiyou, and Trinity Counties. More than \$11,750,000 was from Shasta County prior to World War II. Most of the silver was recovered as a by-product from massive sulfide deposits in the East Shasta and West Shasta copper-zinc districts.

Mining in the South Fork district in Shasta County, about 12 miles southwest of Redding, was directed primarily toward silver production. Much of this silver came from freibergite associated with argentiferous galena in quartz veins in granitic rocks.

MINES AND PROSPECTS

Location: S $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29, T.26N., R.7W., MDBM, Tehama Co.
(See under METALLICS, Copper)

Name: Silver King

Location: *SE $\frac{1}{4}$ Sec. 8, T.31N., R.5W., MDBM, Shasta Co.

(10,20)

Description: 325' vertical shaft with drifts to 410' long on four levels; about 1000 tons shipped

Geology: argentiferous sulfides in brecciated quartz vein which strikes N for 1500' and dips 82°E in greenstone; associated with dike of porphyritic rhyolite; shoot, 150' long and 14" wide

Name: Continental

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 7 and N $\frac{1}{2}$ N $\frac{1}{2}$ Sec. 18, T.31N., R.6W., MDBM, Shasta Co.

(31)

Description: two adits to 200' long and a shaft; active during 1880's

Geology: two veins to 3' wide with argentiferous sulfides and minor gold values in quartz diorite; strike N10°E and N45°E with E dip at about 80°

Name: Silver Falls—Chicago Consolidated (*Chicago*)

Location: *SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 17 and W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 20, T.31N., R.6W., MDBM, Shasta Co. (10,14,31)

Description: produced about \$1,000,000 in silver and gold; 210' Chicago shaft on Chicago-Madison vein; 600' adit on Silver Falls; some high grade mined from two pits and shallow shaft on Richmond claim in Sec. 20; in 1900, a 3,000' adit leading to several drifts and stopes encountered 36 veins

Geology: numerous narrow quartz veins with argentiferous sulfides and lesser gold values in quartz diorite

Name: Big Dyke

Location: *SW $\frac{1}{4}$ Sec. 17 and SE $\frac{1}{4}$ Sec. 18, T.31N., R.6W., MDBM, Shasta Co.

(10,31)

Description: 153' shaft and other workings; operated from 1906–11; some "high grade" reported; joins Silver Falls-Chicago on north

Geology: series of roughly parallel, narrow quartz veins strike N60°E, have vertical to steep SE dip in quartz diorite; Big Dyke is 3' wide with argentiferous sulfides in altered quartz diorite; veins are oxidized and leached to a depth of 20–50'

Name: White Star Group (*Crystal*)

Location: *S $\frac{1}{2}$ Sec. 20, T.31N., R.6W., MDBM, Shasta Co.

(14,31)

Description: several shafts and short adits; most work on middle vein to 90' depth

Geology: three parallel veins 1–5' wide and 20–40' apart contain argentiferous sulfides and minor gold values; strike NW and dip 80°SE in quartz diorite

Name: Greenhorn

Location: *NE $\frac{1}{4}$ Sec. 6, T.32N., R.7W., MDBM, Shasta Co.

(See under METALLICS, Copper)

Name: Afterthought

Location: *Secs. 10 and 11, T.33N., R.2W., MDBM, Shasta Co.

(See under METALLICS, Zinc)

Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.33N., R.5W., MDBM, Shasta Co.

(See under METALLICS, Gold)

Location: SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 7, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Gold)

Name: Balaklala

Location: *Secs. 11, 12, 13, and 14, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Shasta King

Location: *W $\frac{1}{2}$ Sec. 12, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Keystone

Location: *NE $\frac{1}{4}$ Sec. 14, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Stowell

Location: *Secs. 14 and 23, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Bully Hill and Rising Star

Location: *Secs. 15, 16, 21, and 22, T.34N., R.3W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Shasta Belmont

Location: *Sec. 24, T.34N., R.4W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Location: *Sec. 24, T.34N., R.4W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Golinsky

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 28, T.34N., R.5W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Sutro (*Stauffer*)

Location: *NW $\frac{1}{4}$ Sec. 29 and NE $\frac{1}{4}$ Sec. 30, T.34N., R.5W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Mammoth

Location: *Sec. 32, T.34N., R.5W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Early Bird

Location: *SW $\frac{1}{4}$ Sec. 11, T.34N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Location: SW $\frac{1}{4}$ Sec. 35, T.38N., R.7W., MDBM, Trinity Co.
(See under METALLICS, Gold)

Location: NE $\frac{1}{4}$ SW $\frac{1}{4}$ and W $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 13, T.40N., R.6W., MDBM, Trinity Co.
(See under METALLICS, Copper)

Location: S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 19, T.40N., R.7W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Location: NW $\frac{1}{4}$ Sec. 23, T.40N., R.7W., MDBM, Siskiyou Co.
(See under METALLICS, Copper)

Location: NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 29, T.41N., R.6W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Location: *W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 33, T.41N., R.7W., MDBM, Siskiyou Co. (1)

Description: three pits

Geology: sulfide-bearing, hydrothermally altered shear zone trends N40°E in granodiorite

Location: S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 5, T.45N., R.7W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Name: Quartz Hill

Location: *E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 16, T.45N., R.10W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Name: Crawfish Gulch

Location: *Sec. 18, T.45N., R.10W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Location: NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.46N., R.9W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

OCCURRENCES

Location: SW $\frac{1}{4}$ Sec. 17, T.34N., R.8W., MDBM, Trinity Co.
(See under METALLICS, Gold)

Location: NE $\frac{1}{4}$ Sec. 29, T.34N., R.8W., MDBM, Trinity Co.
(See under METALLICS, Gold)

Location: SW $\frac{1}{4}$ Sec. 25, T.34N., R.9W., MDBM, Trinity Co.
(See under METALLICS, Gold)

Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.46N., R.9W., MDBM, Siskiyou Co.
(See under METALLICS, Gold)

Location: NW $\frac{1}{4}$ Sec. 13, T.34N., R.10W., MDBM, Trinity Co. (1)

Geology: 5–6' wide quartz vein strikes N50°W for 350' and dips 65–75°N in amphibolite; selected quartz sample assayed a trace Au and 0.6 oz. Ag

Conclusions: shows little promise

Location: S $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 27, T.34N., R.10W., MDBM, Trinity Co. (1)

Geology: several small quartz veins and lenses in hornblende schist; composite sample from these veins assayed a trace of Au; 6–10' wide and 30' long gossan resulting from weathering of disseminated pyrite; assayed 0.1 oz. Ag, a trace Au, and no Cu

Conclusions: shows little promise

Location: *S $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 16, T.40N., R.7W., MDBM, Siskiyou Co. (1)

Geology: quartz vein 1–8' wide and 200' long strikes N70°W in metavolcanic rocks

ZINC [Zn]

MINES AND PROSPECTS

Name: Asher

Location: *NE $\frac{1}{4}$ Sec. 2, T.33N., R.2W., MDBM, Shasta Co. (1)

Description: adit and inclined shaft

Geology: 2' width of disseminated sphalerite is exposed in adit; galena and sphalerite on dump

Name: Woodrow Wilson

Location: *Sec. 4, T.33N., R.2W., MDBM, Shasta Co. (24)

Description: two pits on Homestead veins, and three adits to 600' long on Woodrow Wilson lode

Geology: Homestead quartz veins, to 8' wide locally contain lenses of galena, chalcopryite, pyrite, and sphalerite; Woodrow Wilson lode strikes NE, dips 50°NW, and carries base-metal sulfides; both Homestead veins and Woodrow Wilson lode are in rhyolite, the latter near contact with slate

Name: Cowboy (*Abe Lincoln*)

Location: *S $\frac{1}{2}$ Sec. 4, T.33N., R.2W., MDBM, Shasta Co. (2)

Description: four short adits and several pits; six holes drilled 1950–51 encountered disseminated pyrite and some chalcopryite; one cut 13' that assayed 1.2–11.9% Zn

Geology: sulfides and limonite in Bully Hill rhyolite

Name: Sugarloaf

Location: *NE $\frac{1}{4}$ Sec. 4, T.33N., R.2W., MDBM, Shasta Co. (2,10)

Description: two adits to 800' long; 2' of sulfide minerals in face of lower adit

Geology: 1–2' wide quartz vein strikes E, dips 50°N, and locally contains pyrite, galena, and sphalerite; along Bully Hill rhyolite-slate contact

Name: Afterthought

Location: *Secs. 10 and 11, T.33N., R.2W., MDBM, Shasta Co. (2)

Description: active 1862–96 and 1905–52; during latter period, 166,424 tons mined averaged 16% Zn, 3.23% Cu, 2.17% Pb, and 5.55 oz. Ag with 0.03 oz. Au; developed by ten levels to a depth of 729'

Geology: about 16 tabular to cigar-shaped sulfide replacement lenses ranging to about 400' in maximum dimension; sulfide lenses are massive to banded, and occur at or near contact between brecciated quartz keratophyre of the Bully Hill rhyolite and superjacent shale and tuff of the Pitt formation

Name: Balaklala

Location: *Secs. 11, 12, 13, and 14, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Shasta King

Location: *W $\frac{1}{2}$ Sec. 12, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Keystone

Location: *NE $\frac{1}{4}$ Sec. 14, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Stowell

Location: *Secs. 14 and 23, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: New Okosh

Location: *SW $\frac{1}{4}$ Sec. 34, T.33N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: St. John

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 30, T.34N., R.1W., MDBM, Shasta Co. (24)

Description: modest production from surface pits

Geology: lenses and stringers of sphalerite with galena and copper sulfide crop out in a 60' by 8' area in limestone; selected samples assayed 19% Zn

Name: Bully Hill and Rising Star

Location: *Secs. 15, 16, 21, and 22, T.34N., R.3W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Mammoth

Location: *Sec. 32, T.34N., R.5W., MDBM, Shasta Co.
(See under METALLICS, Copper)

Name: Early Bird

Location: *SW $\frac{1}{4}$ Sec. 11, T.34N., R.6W., MDBM, Shasta Co.
(See under METALLICS, Copper)



Mountain Copper Co.'s pyrite mine in Sections 34 and 35, Township 33 North, Range 6 West, MDBM.

Industrial Rocks and Minerals

The introductory paragraph relating to deposits¹ of industrial rocks and minerals in PART I (see page 64) is also pertinent here.

Of the Southern Pacific properties listed, the following in the PART II area are considered to be the most promising:

ASBESTOS:

NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1, T.37N., R.5W., MDBM, Shasta Co.

SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 7, T.37N., R.7W., MDBM, Trinity Co.

BROKEN STONE:

S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 19, S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 20, N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 30, and NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 31, T.41N., R.4W., and SE $\frac{1}{4}$ and E $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 24, T.41N., R.5W., MDBM, Siskiyou Co.

LIMESTONE AND CALCITE MARBLE:

W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 3 and E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 5, T.34N., R.2W., MDBM, Shasta Co.

W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 5, T.34N., R.3W., MDBM, Shasta Co.

E $\frac{1}{2}$ Sec. 7, NE $\frac{1}{4}$ Sec. 19, and E $\frac{1}{2}$ Sec. 31, T.35N., R.3W., MDBM, Shasta Co.

Secs. 5, 9, 17, 19, 21, and 31, T.36N., R.2W., MDBM, Shasta Co.

N $\frac{1}{2}$ Sec. 1 and E $\frac{1}{2}$ Sec. 19, T.36N., R.3W., MDBM, Shasta Co.

E $\frac{1}{2}$ and SW $\frac{1}{4}$ Sec. 1, N $\frac{1}{2}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 13, T.36N., R.4W., MDBM, Shasta Co.

SE $\frac{1}{4}$ Sec. 35, T.37N., R.3W., MDBM, Shasta Co.

N $\frac{1}{2}$ Sec. 11, T.37N., R.4W., MDBM, Shasta Co.

N $\frac{1}{2}$ Sec. 15, T.37N., R.4W., MDBM, Shasta Co.

NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 5, T.42N., R.6W., MDBM, Siskiyou Co.

SILICA:

NE $\frac{1}{4}$ Sec. 17, T.34N., R.3W., MDBM, Shasta Co.

VOLCANIC CINDERS:

NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.40N., R.3W., and W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 35, T.41N., R.3W., MDBM, Siskiyou Co.

SE $\frac{1}{4}$ Sec. 15, T.42N., R.4W., MDBM, Siskiyou Co.

SE $\frac{1}{4}$ Sec. 5, T.44N., R.1W., MDBM, Siskiyou Co.

¹Deposits at locations indicated by * are not owned by Southern Pacific.

ABRASIVES

OCCURRENCES

Location: *E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 34, T.36N., R.9W., MDBM, Trinity Co.

(1)

Geology: garnetiferous mica schist forms outcrop 500' long by maximum of 100' wide; garnet content about 40%

ASBESTOS

The physical properties, uses, and modes of occurrence of asbestos minerals are given in PART I, page 64.

MINES AND PROSPECTS

Location: NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1, T.37N., R.5W., MDBM, Shasta Co.

(1,33)

Description: minor production of slip-fiber amphibole asbestos from three shallow adits for manufacture of fire-resistant paint and acid filters

Geology: vein-like deposit averaging about 1.5–2' wide strikes N33°W and dips 45°SW in faulted peridotite; slip fiber is up to 37" long; post-asbestos faults are common

Conclusions: excellent source of slip-fiber amphibole asbestos

Name: Stock

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1, and Secs. 2, 3, and 4, T.37N., R.5W., and Secs. 33 and 34, T.38N., R.5W., MDBM, Shasta Co.

(1,27,33)

Description: adits, cuts and pits; some production prior to 1945

Geology: amphibole and chrysotile asbestos in stringers in serpentized peridotite; in NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1, T.37N., R.5W., amphibole asbestos in vein-like deposit to 4' wide strikes N45–60°E, dips 70°SE in peridotite

Location: *Sec. 20, T.37N., R.5W., MDBM, Shasta Co.

(1,33)

Description: shallow trenches and small cuts; 2,000' of diamond drilling in early 1950's

Geology: chrysotile asbestos stringers in peridotite; fiber to $\frac{1}{2}$ " long

Location: N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 11, T.37N., R.6W., MDBM, Trinity Co.

(1)

Description: 30' trench

Geology: 20' wide zone of widely spaced asbestos stringers strikes NW in peridotite; widest stringer is 2" with fibers about $\frac{1}{4}$ " long

Conclusions: shows little promise

Location: SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 7, T.37N., R.7W., MDBM, Trinity Co.

(1,6,33)

Description: at least seven tons valued at \$380 per ton shipped in 1930 from several trenches to 20' long and 8' wide

Geology: NW-trending shear zone 10' wide in serpentine contains parallel stringers of chrysotile 1/4–2" wide and 2–4" apart; cross fiber to 2" long, averages 3/4"

Conclusions: warrants further exploration

Name: Trinity

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 32, T.38N., R.5W., MDBM, Trinity Co. (33)

Description: trench; 371' of diamond drilling in five holes in 1954

Geology: stringers of slip-fiber chrysotile asbestos in serpentinized peridotite; fiber to 3" long, average about 1"

Name: White Cloud

Location: *Sec. 13, T.38N., R.6W., MDBM, Trinity Co. (33)

Description: pits

Geology: 1-4' wide deposit of amphibole asbestos strikes N20°E in serpentinized peridotite

Location: *SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 6, T.39N., R.6W., MDBM, Trinity Co. (1)

Description: several pits explore area 500' by 800'

Geology: cross-fiber chrysotile to 3/8" long in stringers in highly serpentinized shear zones in peridotite

Name: Shasta View

Location: *NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 8, T.41N., R.5W., MDBM, Siskiyou Co. (1,8,23,28,33)

Description: several tons mined from adit and pits in 1921

Geology: chrysotile fiber 1/16-3/4" long in veinlets 1/4-3/4" apart in serpentinized peridotite

Location: *NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 17, T.41N., R.5W., MDBM, Siskiyou Co. (1)

Description: pits

Geology: 1/4" chrysotile fibers in NE-trending serpentinized zone in peridotite near contact with diabase dike

Name: Mount Eddy

Location: *Sec. 19, T.41N., R.5W., MDBM, Siskiyou Co. (33)

Description: cut 200' long, about 50' wide and 10-30' deep; about 100 tons containing 1/16-1 1/2" cross fiber shipped for testing in 1957

Geology: area about 900' by 300' contains N-trending stringers of chrysotile in serpentinized dunite and pyroxenite; 15-25% asbestos reported locally

Location: *NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 14, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Description: 30' cut

Geology: asbestos fibers to 1/2" in peridotite

Name: Chamberlain (Burns) Ranch

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 17, T.42N., R.6W., MDBM, Siskiyou Co. (1,8,23,28,33)

Description: trench 20' long, 5' wide and 3' deep

Geology: chrysotile fibers to 3/8" long as stringers in dark green, talcose serpentine

OCCURRENCES

Location: NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.35N., R.9W., MDBM, Trinity Co. (1)

Geology: cross-fiber asbestos stringers to 3" wide in serpentine float

Conclusions: shows little promise

Location: N $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 13, T.36N., R.9W., MDBM, Trinity Co. (1)

Geology: talus blocks of peridotite contain estimated 15% cross-fiber asbestos stringers 1/8–1/16" wide and spaced about 1–2" apart

Conclusions: shows limited promise

Location: NW $\frac{1}{4}$ Sec. 3, T.38N., R.6W., MDBM, Trinity Co. (1)

Geology: swarms of 1/16–1/4" widely spaced asbestos stringers in peridotite; steeply dipping swarm sets strike N20–30°E, N20°W, and N70–80°W

Conclusions: shows limited promise

Location: *NE $\frac{1}{4}$ Sec. 34, T.38N., R.7W., MDBM, Trinity Co. (1)

Geology: asbestos fibers about 1/8" long in peridotite

Location: NW $\frac{1}{4}$ Sec. 5, T.39N., R.6W., MDBM, Trinity Co. (1)

Geology: chrysotile in serpentinized peridotite

Conclusions: shows little promise

Location: E $\frac{1}{2}$ Sec. 1, T.39N., R.7W., MDBM, Trinity Co. (1)

Geology: widely spaced asbestos stringers in peridotite

Conclusions: shows little promise

Location: Sec. 19, T.40N., R.6W., MDBM, Trinity Co. (1)

Geology: serpentinized shear zones contain to 40% cross-fiber asbestos in peridotite; zones 50' long, to 30' apart and two inches to two feet wide

Conclusions: shows little promise

Location: W $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 25, T.40N., R.6W., MDBM, Siskiyou Co. (1)

Geology: widely spaced stringers of chrysotile in serpentinized shear zones in peridotite

Conclusions: shows little promise

Location: SE $\frac{1}{4}$ Sec. 25, T.40N., R.7W., MDBM, Trinity Co. (1)

Geology: stringers of minus 1/4" chrysotile fiber in N-trending serpentinized zone in peridotite; zone contains less than 1% asbestos

Conclusions: shows little promise

Location: *S $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 36, T.40N., R.7W., MDBM, Trinity Co. (1)

Geology: stringers of 1/4" chrysotile fiber in peridotite

Location: *Sec. 20 and SW $\frac{1}{4}$ Sec. 21, T.41N., R.5W., MDBM, Siskiyou Co. (1)

Geology: stringers of chrysotile with 1/4–1/2" fibers in peridotite

Location: *Secs. 1, 2, 4, 10, 13, 14, 25, and 36, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Geology: stringers of 1/4–1/2" chrysotile fiber in peridotite

Location: Secs. 3 and 33, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Geology: stringers of 1/4–1/2" chrysotile fiber in peridotite

Conclusions: shows little promise

Location: NE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 9, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Geology: asbestos stringer 4" wide trends NW in peridotite

Conclusions: shows little promise

Location: *NW $\frac{1}{4}$ Sec. 34, T.41N., R.6W., MDBM, Siskiyou Co. (1)

Geology: 2' zone of serpentinized peridotite strikes N10°W for 200'; contains about 50% cross-fiber chrysotile with 1/8" fiber

TRENDS

Location: S $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 35, T.38N., R.5W., MDBM, Shasta Co. (1)

Geology: veins of amphibole asbestos trend towards covered slope of this parcel from adjacent NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 1, T.37N., R.5W.

Location: NE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 33, T.38N., R.6W., MDBM, Trinity Co. (1)

Geology: covered portion of the parcel underlain by peridotite may contain an extension of asbestos which crops out just north of the N $\frac{1}{4}$ corner of the section

BARITE [BaSO₄]

MINES AND PROSPECTS

Location: *Sec. 2, T.34N., R.1W., MDBM, Shasta Co. (10)

Description: shallow pits

Geology: 2' wide barite lens

Location: *Sec. 2, T.34N., R.4W., MDBM, Shasta Co. (1)

Description: adit and cuts; selected sample analysed 97% BaSO₄

Geology: 2–6' wide barite vein

Name: Loftus

Location: *Secs. 18 and 19, T.38N., R.3W., MDBM, Shasta Co. (6,24)

Description: several thousand tons of 88–96% BaSO₄ shipped from pits and trenches

Geology: nearly horizontal layers of barite associated with reef limestone and mudstone

OCCURRENCES

Location: *SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 35, T.35N., R.4W., MDBM, Shasta Co. (1,10)

Geology: 8' wide vein containing white barite

BROKEN STONE

MINES AND PROSPECTS

Location: *Sec. 2, T.39N., R.3W., MDBM, Siskiyou Co. (1)

Description: road metal quarry

Geology: volcanic rocks

OCCURRENCES

Location: Sec. 19, T.35N., R.1W., MDBM, Shasta Co. (1)

Geology: keratophyre and andesitic lavas

Conclusions: possible source of crushed rock for construction work

Location: S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 19, S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 20, N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 30, and NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 31, T.41N., R.4W., and SE $\frac{1}{4}$ and E $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 24, T.41N., R.5W., MDBM, Siskiyou Co. (1)

Geology: large deposit of andesite talus on slopes of Black Butte

Conclusions: suitable for use as road metal, concrete aggregate, and railroad ballast

CLAYS

MINES AND PROSPECTS

Name: Redding Brick and Tile

Location: *Sec. 19, T.31N., R.5W., MDBM, Shasta Co. (14)

Description: brick production for local market reported

Geology: clay from Red Bluff formation

OCCURRENCES

Location: *Sec. 28, N $\frac{1}{2}$ Sec. 32, and NW $\frac{1}{4}$ NE $\frac{1}{4}$ and N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 33, T.32N., R.9W., MDBM, Trinity Co. (14)

Geology: thin clay beds with interbedded altered volcanic ash in Weaverville formation

COAL

Beds of subbituminous coal and lignite occur in the Montgomery Creek and Weaverville formations of Eocene age in the southern portion of the Klamath Mountains. The coal deposits of the Weaverville formation are located west of the Sacramento River, and are of relatively limited extent. Those of the Montgomery Creek formation occur east of the Sacramento, and compose the Shasta County coal deposits, known to extend discontinuously for 15 miles from the NW $\frac{1}{4}$ Section 13, T.32N., R.1W., to Section 1, T.34N., R.1W., MDBM.

The Montgomery Creek formation contains three coal seams within a stratigraphic interval of about 800 feet. Most of the upper seam has been removed by erosion, and the middle seam occurs as local lenses. The lower seam extends for nine miles from the northwest corner of Section 13, T.32N., R.1W., to the S½ Section 27, T.34N., R.1W., MDBM. It averages about 2.4 miles wide, approximately four feet thick, and is estimated to be capable of yielding more than 45 million long tons of coal.

MINES AND PROSPECTS

Name: Reese Brothers

Location: *Sec. 32, T.32N., R.9W., MDBM, Trinity Co. (1,11)

Description: some lignite produced from incline and pits

Geology: lignite bed averaging 5–6' thick strikes N50–70°E, dips 10–20°S; interbedded with thin clay and volcanic ash; sample of coal analyzed 6850 B.T.U. per lb., 32.6% volatiles, 25.7% fixed carbon, and 14.9% ash

Location: *Sec. 3, T.33N., R.1W., MDBM, Shasta Co. (1)

Description: diamond drill hole in NE¼NE¼ Sec. 3 encountered two 3' coal beds at 441' and 592' depths

Geology: two 3' coal beds crop out in E½ Sec. 3

Name: Mt. Shasta

Location: *E½ Sec. 4, T.33N., R.1W., MDBM, Shasta Co. (10)

Description: incline and drift

Geology: interbedded coal and shale

Name: Cook

Location: *Secs. 18 and 19, T.33N., R.1W., MDBM, Shasta Co. (1,24)

Description: 180' adit; sample of 6' bed of coal analyzed 32.5% volatiles, 29.9% fixed carbon, and 26.2% ash

Geology: steeply dipping seam of lignite to subbituminous coal

Name: Luce

Location: *SW¼NW¼ Sec. 20, T.33N., R.1W., MDBM, Shasta Co. (24)

Description: gentle 320' incline and 150' drift in 5–6' coal bed; 45° inclined winze 353' long encountered 5' coal bed at vertical depth of 57'; a raise above upper workings located an upper coal bed; samples analyzed 27.8–29.1% volatiles, 30.6–33.2% fixed carbon, and 25.8–27.2% ash

Geology: subbituminous coal to lignite with intercalated clay partings

Name: Dakin

Location: *SE¼ Sec. 12, T.33N., R.2W., MDBM, Shasta Co. (1,24)

Description: 350' adit; sample of a 2' bed analyzed 33.7% volatiles, 35.6% fixed carbon, and 17.7% ash

Geology: lignite to subbituminous coal seams separated by thin clay partings within a stratigraphic interval of 14'

Location: SW $\frac{1}{4}$, E $\frac{1}{2}$ E $\frac{1}{2}$, and SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.34N., R.1W., MDBM, Shasta Co. (1)

Description: three diamond drill holes encountered coal beds 6–8' thick at depths of 233–462'

Geology: subbituminous coal seams interbedded in sandstone and shale

Conclusions: shows limited promise for direct fuel use

Name: Kosk Creek

Location: *Secs. 9, 10, 14, 15, 16, and 22, T.38N., R.1W., MDBM, Shasta Co. (10,24)

Description: adit on lower coal seam at creek level; adit and gentle 130' incline on upper seam

Geology: two coal seams about 4' thick with shale and clay interbeds and separated by 17' of sandstone; beds dip 5°N

OCCURRENCES

Location: *S $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 7, T.33N., R.1W., MDBM, Shasta Co. (1)

Geology: 3' coal bed dips 45°W

Location: *W $\frac{1}{2}$ Sec. 33, T.33N., R.1W., MDBM, Shasta Co. (1)

Geology: coal seams to 6' thick

Coal seams also crop out at the following locations:

*Sec. 5, T.33N., R.1W., MDBM, Shasta Co.

*Secs. 8 and 9, T.33N., R.1W., MDBM, Shasta Co.

*E $\frac{1}{2}$ SE $\frac{1}{4}$ Sec. 29, T.33N., R.1W., MDBM, Shasta Co.

*SW $\frac{1}{4}$ Sec. 27, T.34N., R.1W., MDBM, Shasta Co.

*SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 28, T.34N., R.1W., MDBM, Shasta Co.

*Sec. 24, T.37N., R.1W., MDBM, Shasta Co.

DECORATIVE AND DIMENSION STONE

MINES AND PROSPECTS

Name: Texas Spring

Location: *Sec. 29, T.31N., R.5W., MDBM, Shasta Co. (14)

Description: quarry

Geology: tan to brown sandstone

Name: Jewell

Location: *S $\frac{1}{2}$ Sec. 25, T.31N., R.6W., MDBM, Shasta Co. (14)

Description: quarry

Geology: gray quartz diorite

Name: Antone (*Weeks*)

Location: *Sec. 13, T.45N., R.7W., MDBM, Siskiyou Co. (8,28)

Description: quarried since 1860 as dimension stone in Yreka area

Geology: 0.5–8' "layers" of tawny-colored sandstone

Name: Fiock Bros.

Location: *S $\frac{1}{2}$ Sec. 13, T.45N., R.7W., MDBM, Siskiyou Co. (1,8,14,28)

Description: quarry

Geology: massive sandstone; upper bed 16' thick, uniform texture, tawny color

OCCURRENCES

Location: NE $\frac{1}{4}$ Sec. 7 and N $\frac{1}{2}$ Sec. 9, T.38N., R.4W., MDBM, Shasta Co. (1)

Geology: granite porphyry and alaskite porphyry

Conclusions: appears suitable for decorative stone

DIATOMITE

OCCURRENCES

Location: *Secs. 21, 27, 28, 29, 33, 34, 35, and 36, T.48N., R.4W., MDBM, Siskiyou Co. (1)

Geology: scattered grayish-white to light tan, fresh-water diatomite deposits from a few inches to 100 feet thick; consist of about 75% diatoms and 25% clay

LIMESTONE AND CALCITE MARBLE [CaCO₃]

The principal use of limestone and calcite marble is in the manufacture of portland cement. They are also used as a metallurgical fluxing agent, soil conditioner, source of lime, raw material in the manufacture of a wide range of chemicals, in the manufacture of sugar from sugar beets, and as dimension stone. Crushed limestone and marble are used for concrete aggregate, road metal, railroad ballast, and in filter beds. Finer fractions are used as poultry grit, in stucco, and in several other products. Marble is used as ornamental stone.

MINES AND PROSPECTS

Name: Briggsville (Moorestown)

Location: *N $\frac{1}{2}$ Sec. 31, T.31N., R.5W., MDBM, Shasta Co. (10)

Description: quarry furnished raw material for a few hundred tons of lime in 1925

Geology: Kennett limestone lens 100' thick

Name: Calaveras Cement Company (see photo, page 180)

Location: *Secs. 2 and 3 (quarry), and Sec. 9 (plant), T.33N., R.4W., MDBM, Shasta Co. (12)



Redding plant and quarry of Calaveras Cement Company, a division of the Flintkote Company. Plant is served by Southern Pacific.

Description: plant capacity (1962) of 1½ million barrels cement per year; crushed limestone is delivered to plant from quarry via 550' inclined shaft, 740' adit, and 7000' conveyor belt capable of moving 300 tons per hour

Geology: McCloud limestone deposit about 2000' long, 500' wide, and 400' thick

Location: S½SE¼ Sec. 21, T.33N., R.9W., MDBM, Trinity Co. (1,11,14)

Description: small quarry operated years ago furnished raw material for Weaverville courthouse

Geology: impure marble beds less than 10' thick

Conclusions: shows little promise

Name: Shasta Iron Company

Location: *N½NE¼ Sec. 26, T.34N., R.4W., MDBM, Shasta Co. (25)

Description: quarry with face 100' high by 200' long; limestone used in electric furnaces at Heroult and at Bully Hill smelter; analysed 97.6% CaCO₃, 0.76% MgCO₃, 0.5% Fe₂O₃, 0.6% Al₂O₃, and 0.41% SiO₂

Geology: McCloud limestone

Name: Holt and Gregg

Location: *NW¼ Sec. 34, T.34N., R.5W., MDBM, Shasta Co. (14)

Description: limestone quarried for use in lime production; kilns at Kennett produced 25 tons lime per day

Geology: Kennett limestone

Name: Mt. Shasta

Location: *Sec. 7, T.42N., R.6W., and Sec. 12, T.42N., R.7W., MDBM, Siskiyou Co. (8,25,28)

Description: approximately 1200 tons per week were shipped for use in sugar refining; analysed 98.65% CaCO₃, 0.27% MgO, 0.18% SiO₂, 0.10% Al₂O₃, and 0.20% Fe₂O₃

Geology: massive to thin-bedded, light gray, dense to finely crystalline Gazelle limestone; strikes NE to NNE

Name: Electro Lime and Chemical

Location: *N½NE¼ Sec. 8, T.42N., R.6W., MDBM, Siskiyou Co. (1,25,28)

Description: 200 tons per day of agricultural limestone and 125 tons per week of "carbide rock" produced in 1947; limestone analysed minimum of 95% CaCO₃ and a maximum of 1% MgCO₃

Geology: massive to thin-bedded, light gray, dense to finely crystalline Gazelle limestone

Name: Burton

Location: *E½ Sec. 17, T.43N., R.9W., MDBM, Siskiyou Co. (14)

Description: deposit 1,000' wide and 15' thick; six tons of lime for local consumption prior to 1915

Geology: marble lens in calcareous schist(?)

Location: *SW¼SW¼ Sec. 19, T.43N., R.9W., MDBM, Siskiyou Co. (1)

Description: small marble lenses quarried prior to 1906

Geology: marble lens in calcareous schist(?)

OCCURRENCES

Location: *Sec. 4, T.33N., R.5W., MDBM, Shasta Co. (19)

Geology: selected sample of Kennett limestone analysed 99.84% CaCO_3

Location: *SE $\frac{1}{4}$ Sec. 28, T.33N., R.10W., MDBM, Trinity Co. (1)

Geology: 75' thick lens of marble forms 2000' by 500' outcrop

Location: *Secs. 20, 29, 30, and SE $\frac{1}{4}$ and SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 31, T.34N., R.1W., MDBM, Shasta Co. (1)

Geology: Hosselkus limestone

Location: W $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 3 and E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 5, T.34N., R.2W., MDBM, Shasta Co. (1)

Geology: Hosselkus limestone; three samples from Sec. 5 analysed 93.2–95.5% CaCO_3 , 1.1–16% MgCO_3 , 1.24–3.56% SiO_2 , 0.35–0.59% Al_2O_3 , 0.18–0.34% Fe_2O_3 , and 41.59–42.86% loss on ignition

Conclusions: large reserve

Location: *Secs. 4, 8, 9, 10, 15, and 16, T.34N., R.2W., MDBM, Shasta Co. (1)

Geology: Hosselkus limestone deposits to 400' thick

Location: W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 5, T.34N., R.3W., MDBM, Shasta Co. (1)

Geology: McCloud limestone; two selected samples analysed 97.5% CaCO_3 , 1.0% MgCO_3 , 0.36–0.40% SiO_2 , no Al_2O_3 , and 0.028–0.057% Fe_2O_3

Conclusions: large reserve

Location: *Secs. 12, 13, 14, 23, and 24, T.34N., R.3W., MDBM, Shasta Co. (1,2,25)

Geology: large deposit of McCloud limestone

Location: *Secs. 13, 23, and 24, T.34N., R.4W., MDBM, Shasta Co. (1)

Geology: McCloud limestone

Location: SW $\frac{1}{4}$ NE $\frac{1}{4}$ and SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 19, T.34N., R.5W., MDBM, Shasta Co. (1)

Geology: two outcrops of Kennett limestone

Conclusions: shows limited promise

Location: *Secs. 5, 6, 17, 21, 28, 32, and 33, T.35N., R.2W., MDBM, Shasta Co. (1)

Geology: deposits of Hosselkus limestone

Location: *W $\frac{1}{2}$ Sec. 5, Sec. 6, W $\frac{1}{2}$ Sec. 8, W $\frac{1}{2}$ Sec. 17, Secs. 18, 20, N $\frac{1}{2}$ and W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 29, and SE $\frac{1}{4}$ Sec. 30, T.35N., R.3W., MDBM, Shasta Co. (1)

Geology: extensive deposits of McCloud limestone

Location: E $\frac{1}{2}$ Sec. 7, NE $\frac{1}{4}$ Sec. 19, and E $\frac{1}{2}$ Sec. 31, T.35N., R.3W., MDBM, Shasta Co. (1)

Geology: McCloud limestone, averaging about 1500' thick, forms high bluffs along McCloud River arm of Shasta Reservoir; analyses indicate much of the formation is of commercial quality; same unit is quarried for commercial uses a few miles south; Sec. 7 contains an estimated 225,000,000 tons of limestone, and Sec. 31 about 335,000,000 tons; sample analysed 96.68% CaCO_3 , 2.49% MgCO_3 , 0.75% SiO_2

Conclusions: large quantities of commercial-grade limestone

Location: Secs. 5, 9, 17, 19, 21, and 31, T.36N., R.2W., MDBM, Shasta Co. (1)

Geology: portions of above sections contain deposits to 200' thick of Hosselkus limestone

Conclusions: large reserve

Location: N $\frac{1}{2}$ Sec. 1 and E $\frac{1}{2}$ Sec. 19, T.36N., R.3W., MDBM, Shasta Co. (1)

Geology: Hosselkus and McCloud limestone

Conclusions: large reserve

Location: E $\frac{1}{2}$ and SW $\frac{1}{4}$ Sec. 1, N $\frac{1}{2}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 13, T.36N., R.4W., MDBM, Shasta Co. (1)

Geology: McCloud limestone, much of which may be of commercial quality

Conclusions: large reserve

Location: SE $\frac{1}{4}$ Sec. 35, T.37N., R.3W., MDBM, Shasta Co. (1)

Geology: 4,500,000 tons estimated of commercial-grade limestone crops out on ridge

Conclusions: large reserve

Location: N $\frac{1}{2}$ Sec. 11, T.37N., R.4W., MDBM, Shasta Co. (1)

Geology: estimated 22,500,000 tons of apparently commercial-grade limestone

Conclusions: large reserve

Location: N $\frac{1}{2}$ Sec. 15, T.37N., R.4W., MDBM, Shasta Co. (1)

Geology: estimated 3,375,000 tons of Kennett limestone; selected samples analysed over 95% CaCO_3

Conclusions: large reserve

Location: NE $\frac{1}{4}$ Sec. 31, T.41N., R.7W., MDBM, Siskiyou Co. (1)

Geology: large area underlain by limestone

Conclusions: shows limited promise

Location: NW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 5, T.42N., R.6W., MDBM, Siskiyou Co. (1)

Geology: estimated 6,000,000 tons of Gazelle limestone; 1200' by 600' outcrop; analysed 95.40% CaCO_3 , 0.37% MgCO_3 , and 1.74% SiO_2

Conclusions: large reserve

Location: *N $\frac{1}{2}$ Sec. 1 and E $\frac{1}{2}$ Sec. 2, T.42N., R.8W., MDBM, Siskiyou Co. (1)

Geology: extensive outcrops of Gazelle limestone

Location: *Secs. 35 and 36, T.43N., R.8W., MDBM, Siskiyou Co. (1)

Geology: gray to white limestone; partially recrystallized and silicified

Location: SW $\frac{1}{4}$ Sec. 31, T.47N., R.8W., MDBM, Siskiyou Co.

(1)

Geology: three marble interbeds in schist

Conclusions: shows limited promise

MICA

Ground mica is used principally in the manufacture of roofing materials, rubber products, and paint.

OCCURRENCES

Location: W $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 31, T.36N., R.8W., MDBM, Trinity Co.

(1)

Geology: quartz-feldspar-muscovite pegmatite dike contains books of greenish, crenulated muscovite to 1" by 2 $\frac{1}{2}$ "; dike is 20' wide, about 600' long, and extends 10-12' above ground level; strikes N50°E, dips 20°NW; three selected samples taken from the north, middle, and south portions of dike contained 50%, 10%, and 5% muscovite respectively

Conclusions: poor accessibility; not suitable for sheet mica but may be usable as ground mica

PUMICITE, TUFF, AND VOLCANIC CINDERS

MINES AND PROSPECTS

Location: *NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 14, T.30N., R.1E., MDBM, Shasta Co.

(1)

Description: pit

Geology: pumicite in rhyolite tuff

Location: *NE $\frac{1}{4}$ Sec. 22, T.42N., R.4W., MDBM, Siskiyou Co.

(1,28)

Description: quarry 250' long with face 20-30' high

Geology: large basalt cinder cone; dark gray to black, glassy, well stratified 1/4-4" cinders

Name: Kegg Pit

Location: SE $\frac{1}{4}$ Sec. 5, T.44N., R.1W., MDBM, Siskiyou Co.

(1,28)

Description: approximately 3,000,000 cu. yds. used for railroad ballast; red and black 1/2-1 1/2" cinders with maximum size of 10"; most of E $\frac{1}{2}$ of cone mined above railroad grade level

Geology: basalt cinder cone

Conclusions: large reserve of cinders

Location: *S $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 17 and N $\frac{1}{2}$ NW $\frac{1}{4}$ Sec. 20, T.45N., R.2W., MDBM, Siskiyou Co.

(1)

Description: pit

Geology: cinder cone containing basalt cinders and scoria

Location: *W $\frac{1}{2}$ Sec. 29, T.48N., R.4W., MDBM, Siskiyou Co. (1)

Description: quarry

Geology: basalt cinder cone

OCCURRENCES

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 2, T.40N., R.3W., and SE $\frac{1}{4}$ Sec. 34, T.41N., R.3W., MDBM, Siskiyou Co. (1)

Geology: andesitic basalt cinder cone; cinders average less than 1/2"

Location: NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 3, T.40N., R.3W., and W $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 35, T.41N., R.3W., MDBM, Siskiyou Co. (1)

Geology: large andesitic basalt cinder cone; cinders average less than 1/2"; 600,000 tons on Sec. 3 and 2,000,000–4,000,000 tons on Sec. 35

Conclusions: large reserve

Location: NE $\frac{1}{4}$ Sec. 9, T.40N., R.3W., MDBM, Siskiyou Co. (1)

Geology: andesitic-basalt cinder cone with 1/4–3/4" cinders; deposit contains an estimated 10,000,000 tons

Conclusions: large reserve

Location: SE $\frac{1}{4}$ Sec. 15, T.42N., R.4W., MDBM, Siskiyou Co. (1)

Geology: large basalt cinder cone; 1/4–4" cinders averaging 1"; deposit contains an estimated 7,000,000 tons

Conclusions: large reserve

Location: *Sec. 34, T.43N., R.1W., MDBM, Siskiyou Co. (1)

Geology: two small andesite cinder cones

Location: *Sec. 36, T.43N., R.3W., MDBM, Siskiyou Co. (1)

Geology: basalt cinders

Location: *E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 12, T.44N., R.3W., MDBM, Siskiyou Co. (1)

Geology: basalt cinder cone

Location: W $\frac{1}{2}$ Sec. 29 and NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 31, T.45N., R.3W., MDBM, Siskiyou Co. (1)

Geology: basalt cinder cones

Conclusions: shows little promise

PYRITE [FeS₂]

Large, shallow deposits of massive pyrite, where suitably located, can compete commercially with native sulfur from Louisiana and Texas mined by the Frasch process. Pyrite contains about 50 percent sulfur, which is recovered by roasting the ores. The oxidized sulfur thus obtained is used in the manufacture of sulfuric acid, a widely used industrial chemical. The chemical and physical specifications of pyrite ores are determined by the consumer.

Pyrite is a usual constituent (as a gangue) in most deposits containing copper, lead, and zinc, and is common in deposits of gold and silver.

MINES AND PROSPECTS

Name: Mountain Copper Co. (*Iron Mountain, Hornet, Richmond*) [see photo, page 170]

Location: *N $\frac{1}{2}$ Sec. 34 and NW $\frac{1}{4}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 35, T.33N., R.6W., MDBM, Shasta Co. (19,34)

Description: pyrite mined for sulfur content from open pit; 3,600,000 tons mined to 1950; active 1962; formerly important copper producer (about 200,000,000 lbs. to end of 1919, from extensive underground workings)

Geology: generally flat-lying, tabular bodies in Balaklala rhyolite; largely massive, but some disseminated sulfide with gossan lenses; deposits vary from a few thousand tons to more than 5,000,000 tons, and are segments of one lens 4,500' long which has been displaced by faulting

SAND AND GRAVEL

Sand and gravel suitable for use as construction materials occur in stream and glacial deposits at several localities. Locations of some deposits exploited on a commercial scale are:

*Sec. 25, T.32N., R.5W., MDBM, Shasta Co.

N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 11, T.36N., R.5W., MDBM, Shasta Co.

*NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 3, NE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 4, and SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 11, T.41N., R.5W., MDBM, Siskiyou Co.

*NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 10, T.42N., R.6W., MDBM, Siskiyou Co.

*SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.43N., R.6W., MDBM, Siskiyou Co.

*SE $\frac{1}{4}$ Sec. 10, T.43N., R.8W., MDBM, Siskiyou Co.

NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 11, T.46N., R.8W., MDBM, Siskiyou Co.

SEMIPRECIOUS STONES

MINES AND PROSPECTS

Name: Agate Flat

Location: *E $\frac{1}{2}$ SW $\frac{1}{4}$ and SE $\frac{1}{4}$ Sec. 14, T.48N., R.5W., MDBM, Siskiyou Co. (1)

Description: (see below)

Geology: (see below)

Name: Agate Flat

Location: NE $\frac{1}{4}$ Sec. 23, T.48N., R.5W., MDBM, Siskiyou Co. (1)

Description: a collecting site for various types of semiprecious stones; material has been collected from surface of 60 acres, and one acre mined to 5' depth; on the average, one cubic yard contains to 12 lbs. of agate

Geology: alluvium contains agate, carnelion, jasper, opal, geodes, quartz crystals, and petrified wood; fossil bones and teeth also occur

SILICA [SiO₂]

The uses of crushed, pulverized, and lump silica are given in PART I, page 70.

MINES AND PROSPECTS

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ and NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 31, T.48N., R.9W., MDBM, Siskiyou Co. (1)

Description: pit

Geology: white quartz lenses in schist

Conclusions: shows little promise

OCCURRENCES

Location: NE $\frac{1}{4}$ Sec. 17, T.34N., R.3W., MDBM, Shasta Co. (1)

Geology: quartz vein to 10' wide strikes about N80°E for several hundred feet

Conclusions: potential source of silica

Location: *Sec. 21, T.34N., R.4W., MDBM, Shasta Co. (2)

Description: quartz veins to 10' thick and 1400' long

Location: *NE $\frac{1}{4}$ Sec. 36, T.38N., R.7W., MDBM, Trinity Co. (1)

Geology: 3' quartz vein strikes NW for 500–600' and locally attains 6–8' of relief

Location: *NW $\frac{1}{4}$ NW $\frac{1}{4}$ Sec. 20, T.46N., R.10W., MDBM, Siskiyou Co. (1)

Geology: massive, white quartz lens about 600–700' wide and about 1000' long in graphite schist

Location: *SW $\frac{1}{4}$ Sec. 36, T.47N., R.9W., MDBM, Siskiyou Co. (1)

Geology: massive, white quartz lens about 500' long in serpentinite

TALC AND SOAPSTONE

The properties and uses of talc and soapstone are given in PART I, page 71.

MINES AND PROSPECTS

Name: Ganim

Location: *Secs. 5 and 8, T.32N., R.6W., MDBM, Shasta Co. (1,7)

Description: 12–15 carloads of talc mined from 900' adit and adjacent workings in 1929

Geology: talc deposit with maximum width of 60' and length of 900' in greenstone

OCCURRENCES

Location: SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 15, T.31N., R.9W., MDBM, Trinity Co. (1)

Geology: tremolite, talc, and soapstone in mica schist

Conclusions: shows little promise

Location: *E $\frac{1}{2}$ E $\frac{1}{2}$ Sec. 22, NE $\frac{1}{4}$ Sec. 24, and NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 25, T.31N., R.9W., MDBM, Trinity Co. (1)

Geology: tremolite, talc, and soapstone in mica schist

Location: E $\frac{1}{2}$ NE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 33, T.34N., R.8W., MDBM, Trinity Co. (1)

Geology: talc in 8–10' wide shear zone that strikes N70°W in greenstone

Conclusions: shows little promise

Location: S $\frac{1}{2}$ S $\frac{1}{2}$ Sec. 15, T.39N., R.4W., MDBM, Siskiyou Co. (1)

Description: irregularly distributed lenses of light red to gray talc in ultramafic rocks; lenses range to 20' in length and are a few feet wide

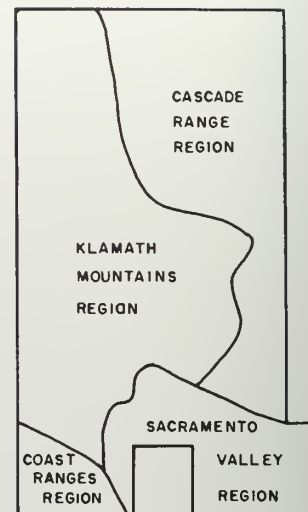
Conclusions: shows little promise

References

PART II—Klamath Mountains and Cascade Range

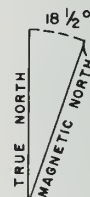
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EXPLANATION

- Quaternary deposits
- Quaternary volcanic rocks
- Tertiary rocks
- Post-plutonic Mesozoic rocks
- Silicic plutonic rocks
- Mafic plutonic rocks
- Ultramafic rocks
- Pre-plutonic Mesozoic rocks
- Paleozoic rocks
- Major fault
- Major thrust fault



APPROXIMATE MEAN DECLINATION, 1962

GENERALIZED GEOLOGIC MAP OF A PORTION OF SHASTA, SISKIYOU, TEHAMA, AND TRINITY COUNTIES

May, 1962

SOUTHERN PACIFIC
LAND DEPARTMENT



Scale in miles

-Compiled from Southern Pacific maps and published sources

Figure 9

Geologic History

Data presented are from Southern Pacific files and published literature. The area mapped (Figure 9) is comprised of portions of four geomorphic provinces: the Klamath Mountains which constitutes 71 percent of the area; the Cascade Range, 22 percent; the Coast Ranges, 3 percent; and the Sacramento Valley, 4 percent.

The geologic history of the Klamath Mountains is similar in many respects to that of the northern Sierra Nevada, described in PART I (page 75). The overlapping volcanic rocks of the southern portion of the Cascade Range separate the Klamath Mountains from the northern Sierra Nevada.

The geologic history may be summarized by four major episodes:

(1) During early Paleozoic times and extending into the Jurassic, interbedded sedimentary and volcanic rocks accumulated in great thicknesses in a north-trending eugeosyncline. The source area of the volcanic deposits was an island arc west of the geosynclinal trough. Clastic sedimentary rocks were derived largely from a craton to the east of the trough.

(2) Near the close of the Jurassic and extending into the Cretaceous, the area was involved in the Nevadan orogeny—the eugeosynclinal deposits were folded, faulted, and intruded by plutonic rocks.

(3) During the remainder of Mesozoic time and extending into the Tertiary, most of the area was uplifted intermittently, and clastic rocks were deposited at the northern and southern extremities of the area.

(4) During the Cenozoic and extending into historic times, clastic rocks with interbedded lavas were deposited, especially in the Cascade Range and Sacramento Valley areas.

PALEOZOIC HISTORY

Schist, argillite, and quartzite of pre-Silurian age crop out along the western edge of the Klamath Mountains region. These rocks are overlain by strata of Silurian age near Scott Valley; otherwise, there is no positive indication of their age. The Ordovician and Silurian systems are represented by slate, argillite, schist, graywacke, chert, and marble of the Duzel and Gazelle formations which crop out over an area six to fifteen miles wide extending about thirty miles south from Yreka.

The schistosity of these rocks indicate regional dynamic metamorphism resulted from compressive stresses in late Silurian or early Devonian time. Although there are many local variations, the general trend of the schistosity describes a gentle arc, convex westward, indicative of apparent east to west compression.

Included within the Devonian system, are the Copley greenstone, Balaklala rhyolite, and Kennett formation. The Copley greenstone is composed largely of keratophyric and splitic lava flows and breccias, and is exposed over wide areas in the southern and eastern parts of the Klamath Mountains. Overlying the Copley greenstone are quartz keratophyre flows and pyroclastic rocks of the Balaklala rhyolite which crop out to the west and south of Shasta Reservoir. Tuffaceous sedimentary rocks of the Kennett formation overlie the Balaklala rhyolite west of Shasta Reservoir and are superjacent to the Copley greenstone west and southwest of Redding and south of Dunsmuir.

The Bragdon formation of Mississippian age rests unconformably upon Devonian rocks, and is exposed over most of the east-central part of the Klamath Mountains between the Shasta and Trinity Reservoirs and extends to the east and north of Dunsmuir. Bragdon rocks also crop out over a thirty-square-mile area just southwest of Weaver-ville. The Bragdon strata are largely shale containing numerous lenses of chert conglomerate and grit, with a few lenses of tuff and sandstone. Overlying the Bragdon is the Baird formation, of Mississippian to possibly Permian age. This formation contains andesitic pyroclastic rocks, shale, minor limestone, and some greenstone and breccia, which form an outcrop belt some 25 miles long on the east side of the Bragdon formation. The Pennsylvanian Chancelulla formation is composed largely of mafic volcanic rocks, slate, and chert with minor carbonate rocks, and crops out for about twenty-five miles in the extreme southwestern part of the Klamath Mountains.

The Permian system includes the McCloud limestone, the Dekkas andesite, and the Nosoni formation. The McCloud limestone contains minor chert nodules and layers, and forms bold outcrops within a structurally disrupted, mile-wide belt extending north from the mouth of the McCloud River arm of Shasta Reservoir for about twenty-five miles. Tuffaceous mudstone, tuff, and mafic volcanic rocks of the Nosoni formation were deposited unconformably upon the McCloud limestone and form a belt that parallels that of the McCloud limestone on its eastern side. Keratophyric and spilitic flows and pyroclastic rocks of the Dekkas overlie the Nosoni and crop out as a belt bordering the Nosoni rocks on the east.

MESOZOIC HISTORY

The oldest Mesozoic rocks are those of the Triassic Bully Hill rhyolite which crops out north and east of the Shasta Reservoir, and is composed largely of quartz keratophyre lavas and pyroclastic rocks with minor dacite, keratophyre, and tuff. Quartz keratophyre dikes, which intrude the Dekkas andesite, are probably feeder dikes of the Bully Hill rhyolite. Overlying the Bully Hill rhyolite, are shale and siltstone with abundant tuff lenses and minor limestone. These rocks comprise the Triassic Pitt formation and crop out as a north-trending belt five to ten miles wide in the southeastern Klamath Mountains where they dip eastward under the late Triassic Hosselkus limestone, Brock shale, and Modin formation. The Hosselkus is a fossiliferous limestone and the Brock and Modin formations are largely shale and calcareous shale. These three formations were deposited about the same time as rocks of the Applegate group which is exposed over a large area in the northernmost part of the Klamath Mountains region. The Applegate group is more intensely metamorphosed than are Triassic rocks to the south, and includes argillite, chert, quartzite, schist, gneiss, marble, and amphibolite.

The early Jurassic Arvison formation, which unconformably overlies the Modin and borders it on the east, is composed of shale, sandstone, and andesitic flows and pyroclastics. Just east of the Arvison, are the middle Jurassic Potem formation and Bagley andesite which contain sandstone, shale, limestone, and andesitic pyroclastic rocks.

Mica schist and greenschist, thought to be of late Jurassic age, are exposed in the southern part of the Coast Range area where they have been intruded by ultramafic and mafic rocks.

Compressive stresses were active along a northwest-southeast direction during the Nevadan orogeny, and resulted in the following northeast-trending major structures involving rocks of Devonian to mid-Mesozoic age:

- (1) a large syncline in the northwest part of the Klamath Mountains area involving the Applegate group of Triassic age
- (2) a northeast elongation of the large plutonic rock mass of Jurassic-Cretaceous age in the central portion of the Klamath Mountains area
- (3) an east-southeast-dipping homocline involving Devonian to Jurassic strata in the southeastern Klamath Mountains

Ultramafic rocks and other plutonic rocks ranging from gabbro to granite crop out over much of the Klamath Mountains region, and are especially abundant in its south-central, north-central, and central parts north of Trinity Reservoir. Although there is controversy as to the absolute ages of these rocks, they apparently were intruded at some time during the late Jurassic or early Cretaceous. The order of intrusion was ultramafic, mafic, intermediate and, finally, silicic. The ultramafic rocks shown on Figure 9 include serpentinized peridotite, dunite, saxonite, and pyroxenite; those mapped as mafic plutonic rocks are largely gabbro and diorite; and the remainder of the plutonic rocks are quartz diorite, granodiorite, granite, and syenite. Mafic and silicic dikes and sills, although locally abundant, are not shown. The great bulk of these rocks are of magmatic origin, but some may have resulted from metasomatic processes. Probably most of the metallic mineralization in this area is related to late stages of Mesozoic plutonic activity.

Early Cretaceous conglomerate, sandstone, graywacke, shale, and greenstone of the "Franciscan" rocks unconformably overlie ultramafic rocks in the Coast Range area. Graywacke, shale, siltstone, and conglomerate of the early Cretaceous "Shasta" formation are nonconformable upon ultramafic rocks in the southeast part of the Coast Range area, and Paleozoic and plutonic rocks along the northern and western fringes of the Sacramento Valley area. Partly arkosic clastic rocks of the late Cretaceous "Chico" formation crop out at the north end of the Sacramento Valley. Correlative rocks of similar lithology occur in the extreme northeast part of the Klamath Mountains region and near Yreka. Deposition was followed by continued uplift and erosion.

CENOZOIC HISTORY AND GEOMORPHOLOGY

Sandstone, conglomerate, shale, and some coal of the Eocene Montgomery Creek formation crop out along the southwest fringe of the Cascade Range region, and are among the oldest rocks of the Tertiary system. Similar and probably correlative deposits (the Weaverville formation) occur to the west and southwest of Trinity Reservoir.

From late Eocene to Late Miocene or early Pliocene, the ancestral Klamath Mountains were eroded to a surface of low relief near sea level. This surface has been termed the Klamath peneplain. During Pliocene and Pleistocene time, the Klamath Mountains region was subjected to several episodes of uplift and subsequent erosion.

Volcanic activity, which had started north of the California portion of the Cascade Ranges, proceeded south and extended into this area at the close of the Eocene. The Western Cascade volcanic series, of intermediate composition containing silicic pyroclastic rocks, was deposited during late Eocene and Miocene along the western border of the Cascade Range region. At the close of the Miocene, the Western Cascade series was gently tilted to the east and northeast and narrow north-trending horsts and

grabens were formed. At the same time, regional uplift initiated formation of the Cascade Range.

The base of the Cascade Range was formed almost exclusively by copious effusions of olivine-bearing basaltic lavas from central fissures which formed broad shield volcanoes of the Icelandic type. Other similar lavas poured down deep canyons incised in older Western Cascade lavas. Large plateaus of basalt accumulated on the eastern side of the Cascade Range during this time.

During the Pliocene, pyroclastic sediments were deposited in shallow seas which occupied the Sacramento Valley region. Those deposits from source areas east of the valley are called the Tuscan formation and those from the west, the Tehama formation. These deposits are largely tuff, tuff breccia, volcanic conglomerate, and tuffaceous sandstone.

Toward the close of the Pliocene or during early Pleistocene, the crest of the Cascade Range was formed by hypersthene andesite which erupted from a north-trending chain of volcanoes. These lavas are the High Cascade series. Violent explosive activity alternated with quiet effusions of basaltic and andesitic lava. Consequently, composite andesitic cones exist side by side with well-preserved basaltic shield volcanoes. The eruptions became progressively more frequent and violent in the later stages of the volcanism, and a series of imposing andesitic cones was built. The largest of the California cones is Mount Shasta, which contains a greater amount of pyroclastic ejecta than any of the other California volcanoes. The eruptions of hypersthene andesite continued during Pleistocene time.

The oldest Pleistocene sedimentary deposits are sand and gravel of the Red Bluff formation which occur at the north end of the Sacramento Valley area. These deposits are overlain by Pleistocene terrace gravels of the Sacramento River which are contemporaneous with the upper part of the Red Bluff formation. Late Pleistocene time was marked by glaciation in the higher parts of the Klamath Mountains and Cascade Range, and the deposition of a variety of morainal and fluvioglacial deposits. Some of the latter, which crop out in the vicinity of the Trinity Reservoir, are locally auriferous and have been named the Klamath gravels.

After the close of Pleistocene time, while the glaciers were shrinking, many new volcanoes of andesite and basalt developed in the High Cascades. Copious fissure flows of basalt flooded much of Butte and Shasta Valleys and the canyons of the Sacramento River, Alder, and Butte Creeks while others impounded the Klamath River to form Copco Lake. Many of the Recent flows are not more than a few thousand years old. The last eruptions at Mount Shasta took place along a north-south fissure traversing the summit parallel to the trend of the Cascade Range.

Water Resources ¹

Precipitation is relatively abundant, and numerous springs, especially in mountainous areas, feed the extensive drainage systems which traverse northern California.

STATION LOCATION	NORMAL ANNUAL PRECIPITATION (INCHES)
Yreka	17.76
Mt. Shasta*	36.72
Redding	38.74
Red Bluff*	22.05
Oroville	29.36
Camptonville	59.76
Blue Canyon*	60.37
Truckee	31.14
Colfax	46.70

*first order station

The following summary of discharge data for the Sacramento River, Klamath River, and Lower Klamath Lake drainage basins shows that sufficient water is present for most mining and mineral beneficiation activities. Specific data regarding availability of water including water rights can be obtained from federal, state and local governmental agencies. Water resources data are not plotted on the Mineral Commodity maps.

¹Includes data for both PARTS I and II.

SURFACE WATER DISCHARGE DATA¹

GAGING STATION	LOCATION (MDBM)		
SACRAMENTO RIVER DRAINAGE BASIN	SEC.	TWP. N	RGE.
Sacramento River at Delta, Calif.	35	36	5W
Pit River near Montgomery Creek, Calif.	32	35	1W
Squaw Creek above Shasta Lake, Calif.	29	35	2W
McCloud River near McCloud, Calif.	34	39	2W
McCloud River above Shasta Lake, Calif.	28	36	3W
Sacramento River at Keswick, Calif.	28	32	5W
Clear Creek near Igo, Calif.	27	31	6W
Cow Creek near Millville, Calif.	32	31	3W
Cottonwood Creek near Cottonwood, Calif.	7	29	3W
Battle Creek near Cottonwood, Calif.	6	29	2W
Paynes Creek near Red Bluff, Calif.	22	28	3W
Sacramento River near Red Bluff, Calif.	34	28	3W
Antelope Creek near Red Bluff, Calif.	c 7	27	2W
Elder Creek near Paskenta, Calif.	14	25	6W
Elder Creek at Gerber, Calif.	d 2	26	3W
Mill Creek near Los Molinos, Calif.	6	25	1W
Deer Creek near Vina, Calif.	23	25	1W
Big Chico Creek near Chico, Calif.	e 9	22	2E
Sacramento River at Butte City, Calif.	32	19	1W
Sacramento River at Colusa, Calif.	g 29	16	1W
Butte Creek near Chico, Calif.	36	22	2E
Sacramento River below Wilkins Slough, Calif.	g 2	13	1E
Sacramento River at Knights Landing, Calif.	14	11	2E
Lost Creek near Clipper Mills, Calif.	24	20	7E
Palermo Canal at Enterprise, Calif.	6	19	6E
S. Fork Feather River at Enterprise, Calif.	6	19	6E
Feather River at Bidwell Bar, Calif.	32	20	5E
N. Fork Feather River at Big Bar, Calif.	6	22	5E
W. Branch Feather River near Yankee Hill, Calif.	6	21	4E
Feather River at Oroville, Calif.	2	19	4E
Milton-Bowman Tunnel at Outlet, Calif.	3	18	12E
Middle Yuba River at Milton, Calif.	12	19	12E
Middle Yuba River above Oregon Creek, Calif.	28	18	8E
Oregon Creek near North San Juan, Calif.	27	18	8E
N. Yuba River below Goodyear Bar, Calif.	11	19	9E
N. Yuba River below Bullards Bar Dam, Calif.	24	18	7E
S. Yuba River near Cisco, Calif.	19	17	13E
Bowman-Spaulding Canal at Intake, Calif.	8	18	12E
Canyon Creek below Bowman Lake, Calif.	7	18	12E
S. Yuba River near Washington, Calif.	5	17	11E

Cfs. = cubic feet per second

¹Data from U. S. Geol. Survey Water Supply Paper 1635.

^aMinimum not determined, 55 cfs. in June, 1959.

^bNo flow at times in several years.

^cWithin Rio De Los Barrendos Grant; equivalent MDBM location.

^dWithin Saucos Grant; equivalent MDBM location.

^eWithin Arroyo Chico Grant; equivalent MDBM location.

^fDrainage area not available.

^gWithin Jimeno Grant; equivalent MDBM location.

DISCHARGE EXTREMES				DISCHARGE AVERAGE		DRAINAGE AREA
MAXIMUM		MINIMUM		YRS.	CFS.	SQ. MI.
Date	Cfs.	Date	Cfs.			
12/55	37,000	9/50	141	15	1,167	427
12/55	37,100	9/59	486	15	3,782	5,170
12/55	17,800	9/49	10	15	236	65.3
12/55	11,800	11/32	524	28	896	382
12/55	45,200	1/50	820	14	1,730	606
2/58	78,800	5/48	154	21	8,440	6,710
12/55	24,500	9/50	8.6	19	431	228
12/51	45,200	8/59	2.1	10	688	427
3/41	52,300	9/45	15	19	861	945
12/37	35,000	a		19	462	362
2/59	6,810	b	0	10	78.2	92.5
2/40	291,000	3/44	2,000	68	11,500	9,300
2/56	11,500	10/40	14	19	149	124
2/58	11,700	b	0	11	103	95.8
2/58	11,000	b	0	10	112	142
12/37	23,000	12/32	49	31	292	134
12/37	23,800	12/32	43	41	305	200
12/37	8,260	12/32	10	29	143	67.9
2/42	170,000	7/31	1,050	21	12,690	f
2/42	49,000	7/31	820	19	10,830	f
12/55	18,700	11/52	10	29	395	148
2/42	28,900	8/31	100	21	9,272	f
2/42	29,600	7/31	250	19	9,996	f
12/55	5,000	b	0	25	75.3	30.1
6/18	41	b	0	48	18.7	f
12/55	19,200	8/50	0	48	316	134
12/55	104,000	1/37	88	48	1,876	1,353
12/55	72,400	7/58	39	49	2,918	1,945
12/37	21,400	1/37	0.3	29	354	145
3/07	230,000	11/31	300	58	5,888	3,611
2/41	492	10/44	0.4	31	67	f
12/37	6,800	b	0	33	109	39.5
12/55	26,400	1/50	10	19	372	162
12/55	5,390	7/31	0.7	48	76.6	34.4
12/55	26,800	8/31	69	29	736	245
12/55	70,000	b	0	19	1,566	482
11/50	11,700	11/54	0.1	17	197	51.5
8/28	262	b	0	32	146	f
12/50	2,520	b	0	32	39	30.4
11/50	24,700	10/50	9.1	14	311	199

Surface Water Discharge Data (continued)

GAGING STATION	LOCATION (MDBM)		
Sacramento River Drainage Basin (continued)			
	SEC.	TWP. N	RGE.
Yuba River at Englebright Dam, Calif.	14	16	6E
Deer Creek near Smartsville, Calif.	23	16	6E
Bear River near Auburn, Calif.	5	13	8E
Bear River near Wheatland, Calif.	3	13	5E
N. Fork American River at N. Fork Dam, Calif.	31	13	9E
Rubicon River near Georgetown, Calif.	23	13	13E
Georgetown Divide ditch above Pilot Creek, near Georgetown, Calif.	26	13	13E
Georgetown Divide ditch near Georgetown, Calif.	11	12	12E
Pilot Creek near Georgetown, Calif.	11	12	12E
Middle Fork American River near Auburn, Calif.	6	12	9E
S. Fork American River near Camino, Calif.	25	11	11E
Weber Creek near Salmon Falls, Calif.	32	11	9E

KLAMATH RIVER DRAINAGE BASIN

Shasta River near Yreka, Calif.	24	46	7W
Scott River near Fort Jones, Calif.	29	44	10W
Trinity River at Lewiston, Calif.	17	33	8W

LOWER KLAMATH LAKE DRAINAGE BASIN

Antelope Creek near Tennant, Calif.	25	43	1W
Butte Creek near Macdoel, Calif.	30	45	1W

Cfs. = cubic feet per second

¹Data from U. S. Geol. Survey Water Supply Paper 1635.

^aMinimum not determined, 55 cfs. in June, 1959.

^bNo flow at times in several years.

^cWithin Rio De Los Barrendos Grant; equivalent MDBM location.

^dWithin Saucos Grant; equivalent MDBM location.

^eWithin Arroyo Chico Grant; equivalent MDBM location.

^fDrainage area not available.

^gWithin Jimeno Grant; equivalent MDBM location.

DISCHARGE EXTREMES				DISCHARGE AVERAGE		DRAINAGE AREA
MAXIMUM		MINIMUM		YRS.	CFS.	SQ. MI.
Date	Cfs.	Date	Cfs.			
12/55	148,000	b	0	18	2,624	1,104
3/43	11,300	8/40	0.1	24	143	84.6
12/55	19,700	11/53	0.1	18	297	140
12/55	33,000	b	0	30	439	295
12/55	49,100	8/44	0	18	837	343
12/55	51,000	11/55	3.4	19	586	198
8/49	27	b	0	10	6.48	f
12/55	37	10/57	0	12	13.7	f
11/50	3,040	8/59	0.3	13	26.7	15.1
12/55	79,000	9/31	20	48	1,372	619
12/55	49,800	8/31	1.3	37	961	497
4/58	12,200	b	0	16	82.8	101
12/55	6,090	8/39	3.4	22	178	796
12/55	38,500	9/55	20	17	659	662
12/55	71,600	7/24	23	48	1,646	726
12/55	422	12/55	5.9	7	38.8	18.8
2/58	351	12/52	0	7	24.4	178

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SYMBOLS

METALLICS

- chromite
- ▣ copper
- gold
- iron
- ▣ lead
- ▣ manganese
- ▣ molybdenum
- ▣ silver
- ▣ tungsten
- ▣ zinc

INDUSTRIAL ROCKS & MINERALS

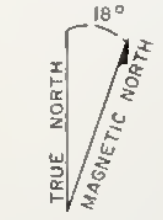
- asbestos
- borite
- clays
- decomposed granite
- marble
- ▣ interbedded sand and clay along Tertiary stream channels (---)
- talc and soapstone

Deposits on Southern Pacific lands are indicated by tick marks.
Limits of mapped area



SOUTHERN PACIFIC Mineral Cammadity Map I Northern California

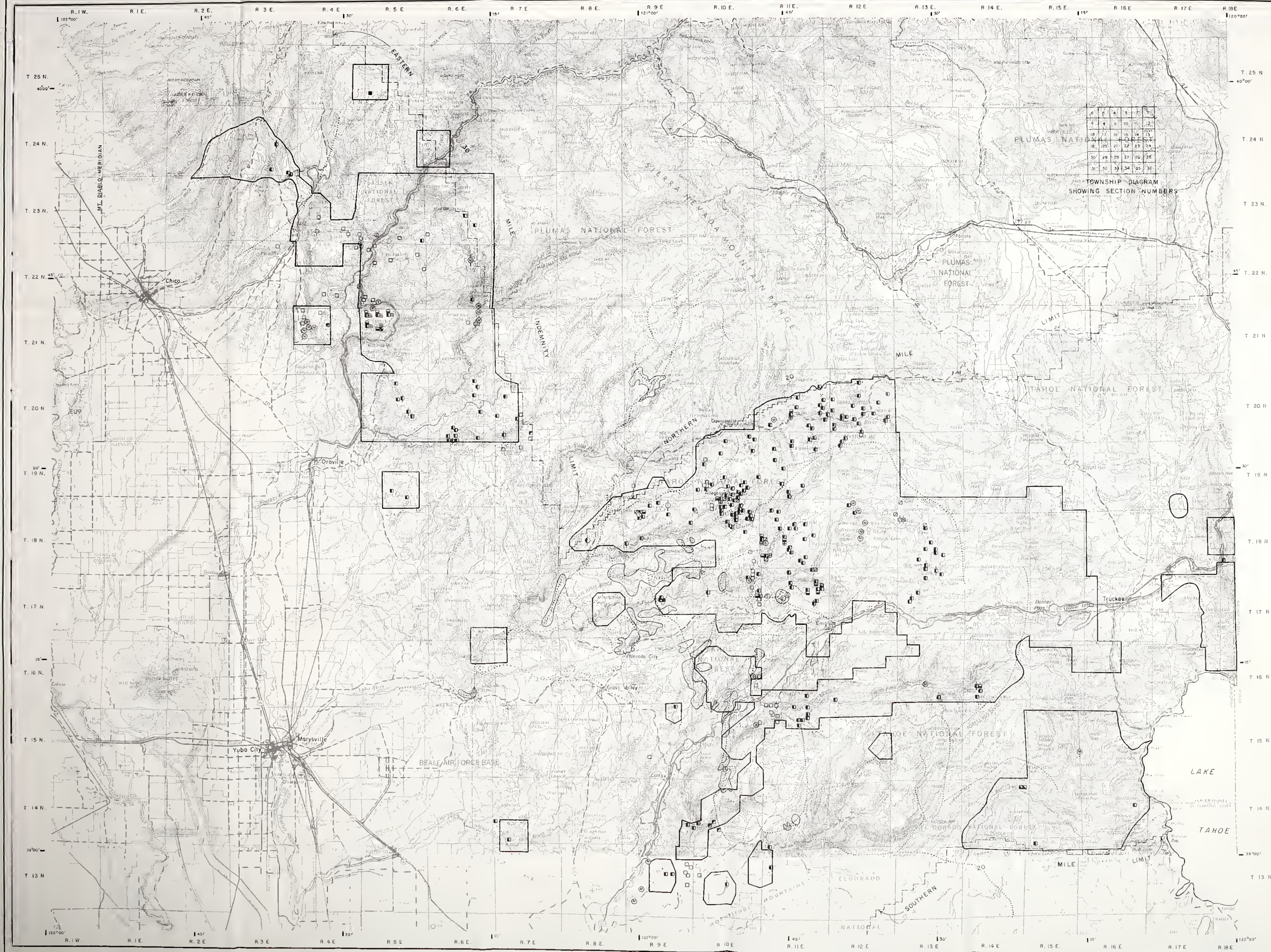
5 0 5
Miles
Contour interval - 200 and 500 feet
with supplemental contours at 100 and 250 foot intervals

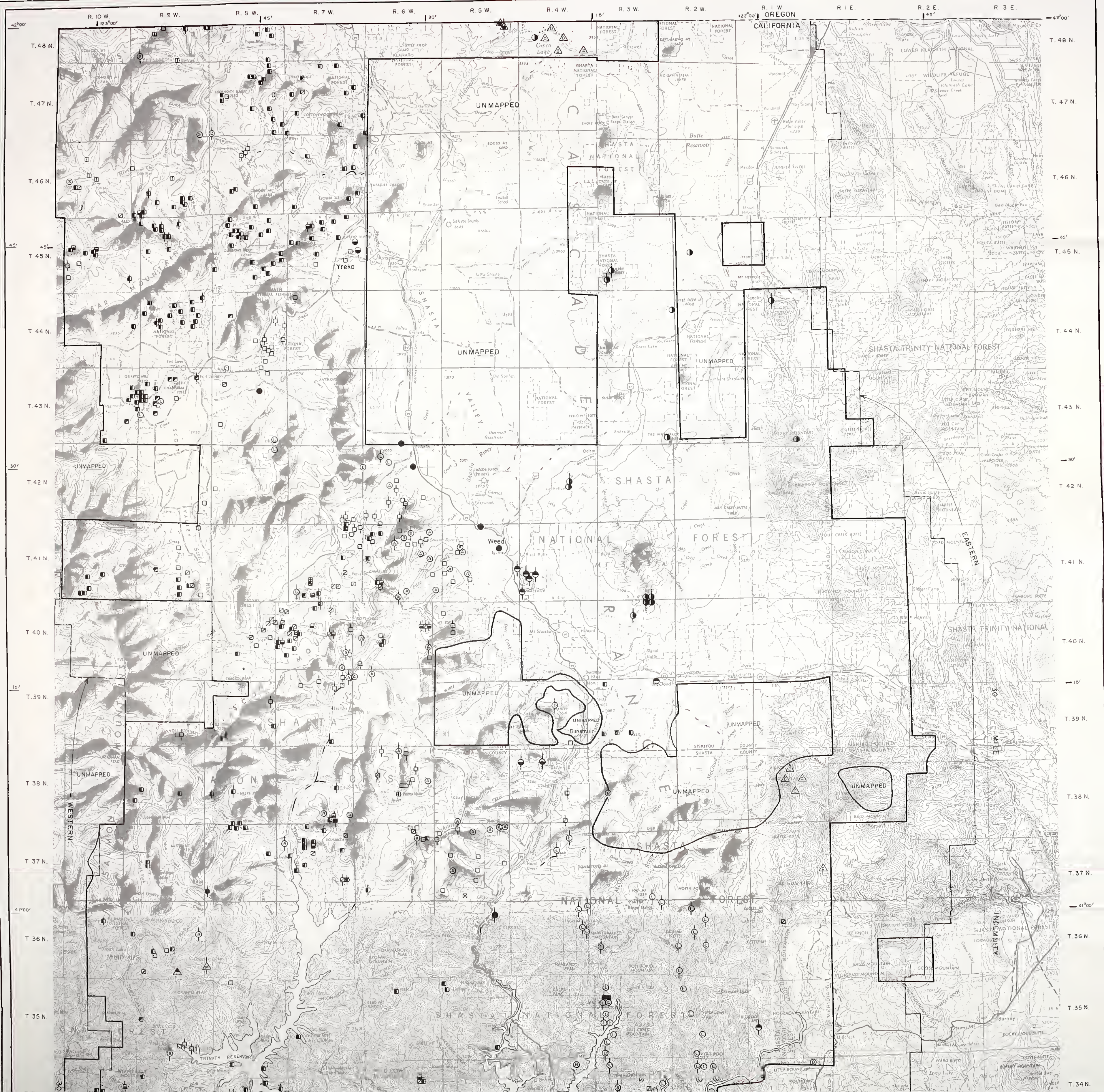


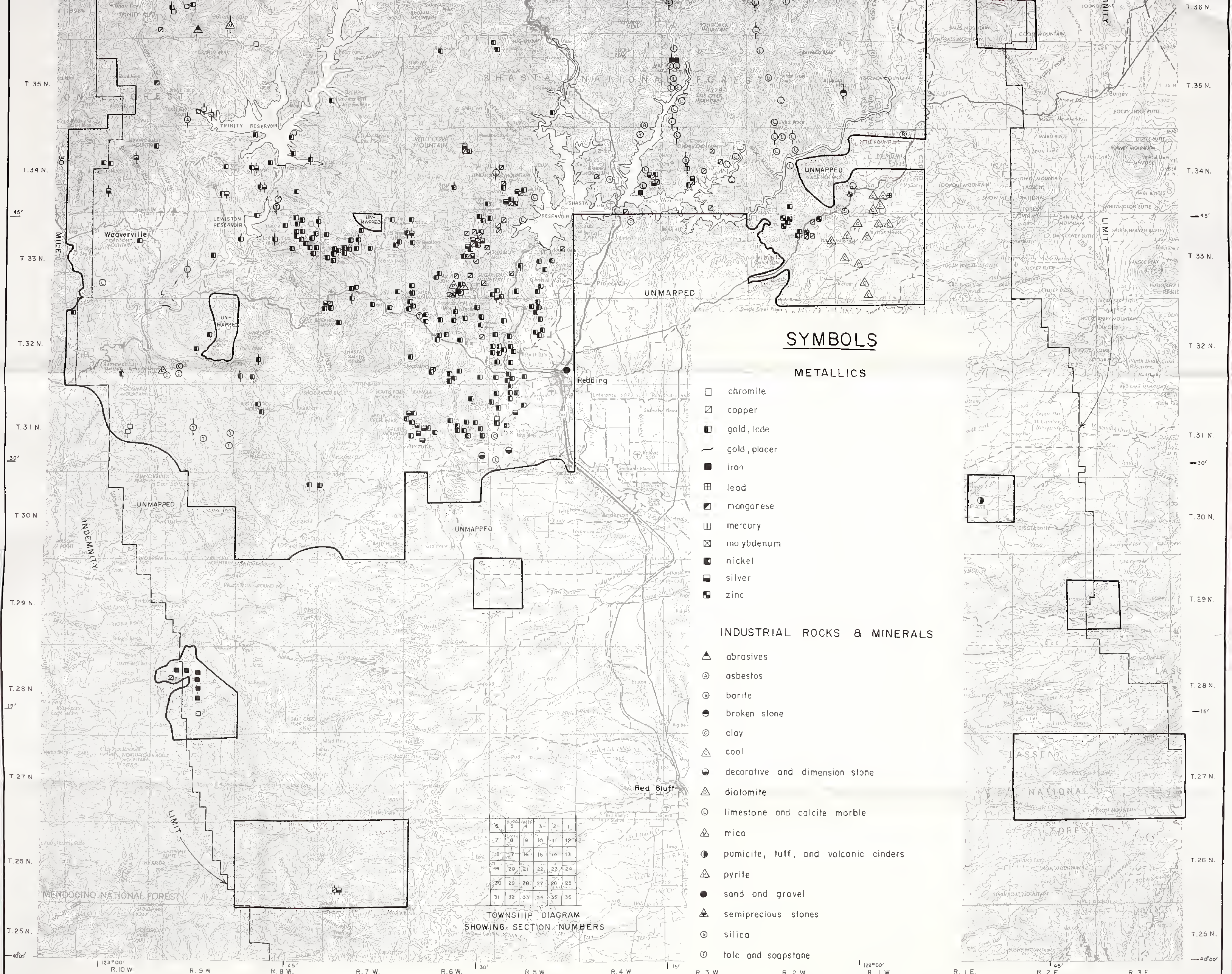
APPROXIMATE MEAN DECLINATION, 1963
Topographic Base - Army Map Service Sheets
Chico(1962) NJ 10-3
Sacramento(1956) NJ 10-6
Woolwood(1950) NJ 10-12

Edition of 1964

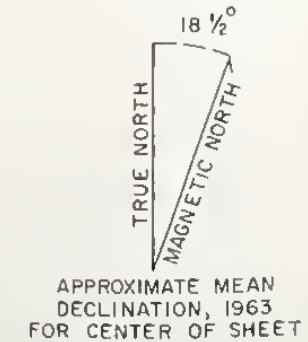
Date Compiled 1963
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Topographic Base - Army Map Service Sheets:
 Weed, 1950 — NK 10-8
 Alturas, 1958 — NK 10-9
 Redding, 1960 — NK 10-11
 Westwood, 1959 — NK 10-12



SOUTHERN PACIFIC

Mineral Commodity Map II Northern California



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Deposits on Southern Pacific lands are indicated by tick marks
 Limits of mapped area

Q689
 M
 C32
 no. 94
 map 1

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1 map.

